

Paris–based Amazing Studio take Edge *Into The Heart Of Darkness*. An exposé of the French games industry starts on page 56. This image was rendered in *3D Studio* by Fabrice Visserot





Clash of the 32bit Titans…
…Death of the 16bit dwarves

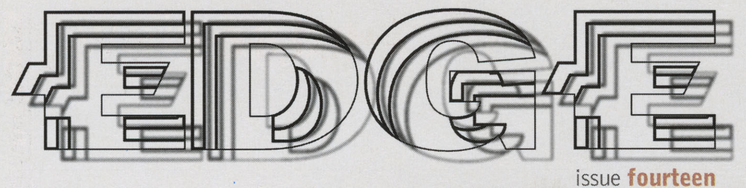
The movie Robojox contains a scene in which two enormous Gundam-style robots do battle in a barren landscape. During this set-to, one of the robots is struck with a tremendous blow and topples into the stands, crushing a large proportion of the audience.

Dreadful though the movie is, this scene is a fitting analogy of the upcoming battle between the two console giants: Sega and Sony. Both companies' powerful machines tower above the gaming arena. Dwarfed by these awesome combatants, the 16bit audience can only sit and watch, dimly aware that, in fact, the only casualty of the forthcoming conflict will be themselves.

The stage is already set; dates have been announced; the proponents are prepped and ready to roll. And when the stores open in downtown Tokyo, the fight will begin. But the bell that signifies the start of the 32bit war will also toll the death knell of the 16bitters. Development for the 16bit machines in Japan is still strong, but the major software companies' prime development teams are already switched over onto the new machines. You can almost picture Japanese programmers silently suffering the ignobility of being asked to work on a 16bit project, gleaming *tantos* at the ready, their best friend permanently on call for the final blow.

But it seems that an entire generation of consoles will not have perished in vain. The PlayStation and Saturn have learned from the mistakes of 3DO, Jaguar and CD^{32}, and it looks like exceptional software will be there from the start of the next wave. Until then, the two giants are waiting for the hangar doors to be wheeled apart…

The **future** is almost here…





issue **fourteen**

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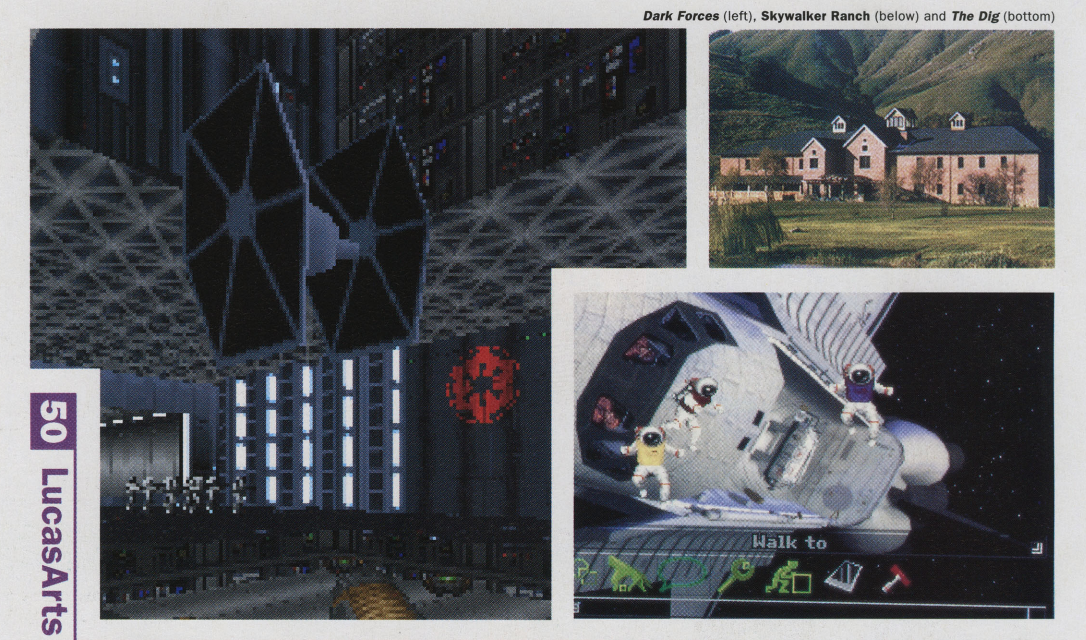
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Gill Sans/**Bold**
Fifth colour: Pantone® 876c

Cover

Cover Image: *Heart Of Darkness* © Amazing Studio
Rendered by: Fabrice Visserot at Amazing Studio



Dark Forces (left), **Skywalker Ranch** (below) and *The Dig* (bottom)





Photography: **Jude Edginton**

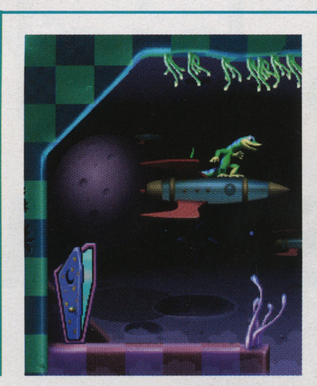
Heart Of Darkness (top left). **Frédéric Savoir** and **Eric Chahi.** (above)

insideview





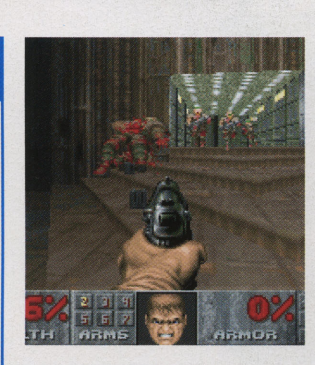

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Gex (left) and *Ridge Racer*

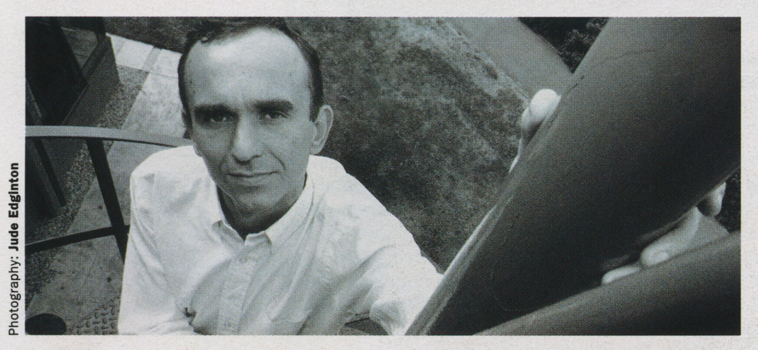
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Doom II (left) and *Inferno*





70 Testscreen



Photography: Jude Edginton

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The latest **news** from throughout the world of interactive entertainment

ECTS: hopes high at Euro **show**

With next-gen hardware and a new wave of software both on course, the games industry had reason to be cheerful at ECTS

Computer Graphics Expo

The US Siggraph computer graphics show is to have a UK equivalent, the Computer Graphics Expo. Taking place on November 8-10, CGE will play host to Europe's largest-ever gathering of computer graphics companies.

Slated to attend are Silicon Graphics (together with 20 of their software partners), HP, ex-military developers Kubota, and UK VR specialists Division.

The London Effects and Animation Festival will also be part of the show. Edge will be on the panel of judges at the event.

Admission is £10, but Edge readers over 18 can gain free entrance to the show on production of this issue of Edge.

Contact Gerry Murray at the VR Centre on 081-995 3623 for details.



The European games industry gathers once every six months at the Business Design Centre in Islington. Retailers talk about 'shipments' while journalists get pissed

The European Computer Trade Show is Europe's premier videogames trade event, taking place every six months at the Business Design Centre in Islington. In contrast to the general disappointment at the spring event's lack of innovation, this autumn's show was marked by genuine optimism among the games community, with the arrival of new hardware promising a resurgence in the industry's fortunes. The presence of the 32X and 3DO at the show were partly responsible for this buoyant mood, but Sony's role was far from insignificant – although not exhibiting at ECTS proper, they held their own event a short distance away featuring a PlayStation under glass and a video wall displaying intermittent demos (full →





The power of Sega's 32X add-on was just about evident in *Metal Head* (above left), but *Virtua Racing Deluxe* was the clear, albeit unspectacular, winner



Sega's stand was a two-tier affair, featuring the 32X and its games on the top floor and an unexciting line-up of 16bit software below it

Taos

Development tools are now available for *Taos*, the revolutionary operating system debuted in Edge 9. *Taos* allows programs to run on machines with completely different CPUs and provides theoretically limitless parallel processing potential.

Prices start from £95 (ex VAT) for a one-chip licence and increase according to the number of chips supported (100 chips running simultaneously will set you back £5,460).

The full list of chips supported is as follows:

- **Intel: 386SX, 386DX, 486SX, 486DX, Pentium**
- **ARM: ARM2, 3, 6, 7**
- **LSI/MIPS: LSI LR33000 (MIPS R3000), LSI LR33050 (MIPS R3000 with maths co-processor)**
- **INMOS: T400, T800, T9000**
- **PowerPC: by year end**

Licence queries are being dealt with by Tantric through the 'TAOS' CIX conference. If you are interested in buying, contact Ian Thomas on 0703 230340.

➔ details on page 9). The quality of software also contributed to the upsurge in enthusiasm; with several exciting products due out before year-end, developers pulled out the stops to show their games in a better light than their rivals'.

Sega grabbed a prime site for the official unveiling of the 32X to the trade. With a planned retail price of £150, the hardware to bridge the Mega Drive-Saturn gap was displayed running three games, none yet complete.

Virtua Racing was, at this stage at least, hardly the visual leap forward that many people expected. The number of polygons and the frame rate had obviously been increased since the SVP-boosted cartridge version, but the overall result didn't seem worth forking out £150 for. How much the remaining few weeks of development will improve matters remains to be seen.

Sega Of Japan's robot shoot 'em up, *Metal Head*, another game still at an early stage in development, was also previewed. With slow texture-mapped scenery it was visually no match for the Jaguar's *Iron Soldier* and had little gameplay to speak of.

A 40%-complete *Doom* made an appearance too, but looked relatively slow and blocky. Ironically, Sega's inclusion of a *Star Wars* coin-op on their stand showed how quickly their Model 1 technology has dated, but the machine proved an extremely popular draw nonetheless.

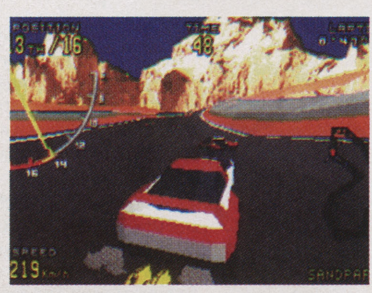
3DO exhibited in a tightly focused (ie small) suite during the week of the UK launch, but it was still a far cry from their last-minute cubicle-plus-curtain affair at the previous ECTS. With 3DO closely linked to EA since birth, *Road Rash* took pride of place among the software, although private demos of excellent games like Silent Software's twoplayer tank game, *Return Fire*, were well received by those who saw them.

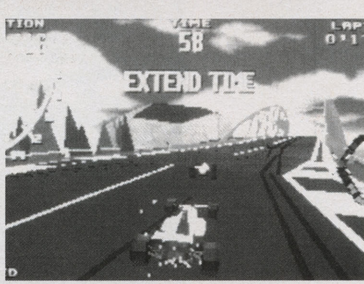
Panasonic's stand naturally had more clout, with their machine having hit UK retailers only a few days before the show. Both companies proclaimed the UK launch to be a great success, despite the fact that the national event was pre-empted by certain impatient retailers who chose to make the machine available to customers a few days before the official September 1 release date.

Philips, who were parked next to Sega, had one of the most striking stands at the show. The reason for their extravagance was the unveiling of their new CD-i model, the £299 450, which is designed to boost the CD-i's profile as a games machine. Several titles emerged as clear leaders on the repackaged platform, but *Burn:Cycle* (see Prescreen, page 34), Trip Media's Bladerunner-style interactive movie, was

Continued next page







32X: an early *Virtua Racing Deluxe* (above and centre) was smooth and fast, while a 40% *Doom* (top) was jerky



3DO's Euro head honchos, John Edelson (left) and Bob Faber (right) talk shop with Aki Kodama (centre), top man at 3DO Japan

Continued

pushed the hardest (with the PR process continuing at an excellent evening bash at terminally trendy venue The Cross.)

Other notable CD-i projects on show included Cryo's beautiful dino-packed adventure, *The Lost Eden* (premiered in **Edge** 8), whose appearance on the platform was accompanied by some excellent 24bit rendered scenes on digital video.

Nintendo are hoping to sell over 200,000 units of *Donkey Kong Country* when the game ships on December 2

Nintendo are holding their carts close to their chest and failed to show anything to cause great excitement at ECTS. However, Square Soft's wonderful SNES RPG, *Secret Of Mana*, crawled out of hiding only a year after the release of the American version. Strangely, Nintendo UK seemed completely oblivious to the fact that every magazine had already reviewed the US version aeons ago and that most players interested in it would have already bought, played, and finished it – providing they had the right adaptor, of course.

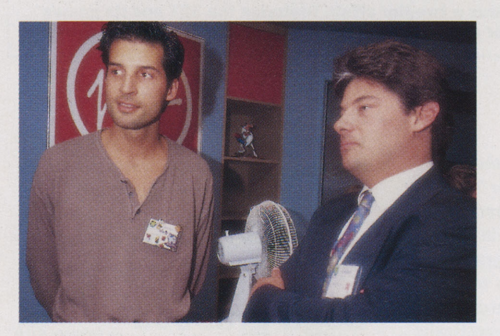
Post CES, the most talked about Nintendo release was still *Donkey Kong Country* – although, unbelievably, the game was absent from Nintendo's floorspace. In response to retail pressure, it was announced that *DKC*'s RRP has been cut by £10 to a 'mere' £60. Nintendo are still hoping to sell over 200,000 units in this country when the game ships on December 2.

In the last few months, Virgin have demonstrated an open mind and an open wallet in their hunt for games to publish and distribute. The policy has certainly paid dividends so far: they now distribute products for LucasArts, id Software and JVC, alongside Sensible, Westwood and other established developers. Within Virgin's suite, replete with typical Virgin hospitality, lay some of the most desirable titles due for release in the coming year. Leading the way in hype terms were *Doom II* and *Earthworm Jim*, with *EJ* developers Shiny Entertainment on call to demonstrate the abilities of their eponymous hero.

LucasArts are probably one of the few companies to have never released a truly awful game (although *Rebel Assault* came perilously close), and the eagerly awaited *Dark Forces* looked set to continue this record. Running on a Pentium, the game looked sickeningly fast and potentially awesome, although whether it will usurp *Doom II* as the master of 3D blasters is debatable.

Electronic Arts embraced the European spirit with a remarkably uninformative multilingual brochure. But with one of the strongest software line-ups ever assembled and an Intel-sponsored demonstration of Bullfrog's *Magic Carpet*, they didn't need words.

Also shown off in what turned out to be a veritable feast for PC owners was a video of the *Wing Commander III* intro. Movie buffs may also have caught a glimpse of the game's star, Mark Hamill, who played Luke Skywalker in the film but must have been 'resting' since 1977.



'Have you ever thought about doing a game with a worm in it?' Dave Perry (left) offers Archer MacLean some friendly advice on the Virgin stand

Philips' huge marketing effort reaped rewards, with a flash stand displaying some decent titles

GLINT

3D Labs have created a new graphics chip which they claim bestows workstation performance on ordinary PCs.

Called GLINT, it works by removing floating-point-intensive calculations from the CPU and performing the maths itself. The result is that 300,000 24bit anti-aliased and texture-mapped polygons/sec are available independently of the CPU, as well as Z-buffering and various special effects.

The European marketing manager of 3D Labs, Tim Lewis, can be contacted by E-mail on time.lewis@3Dlabs.com. or by phone on 0784 470555.

Matrox

Canadian company Matrox have teamed up with Criterion Software to produce a new range of graphics cards. The MGA Impression Plus 64bit graphics accelerators feature an inbuilt polygon engine that is automatically detected and be used by Criterion programs. Matrox claim that they can handle 90,000 Gouraud-shaded polygons per second and provide the best graphics performance of any sub-$500 card.

Matrox can be contacted in Canada through Caroline de Bie on (514) 685 2630.

Sony go it alone during **ECTS**

While the ECTS was taking place, a separate Sony event gave the trade its first glimpse of the PlayStation

Due to a last-minute change of plans, Sony held their own show at an entirely separate venue five minutes away from the ECTS. Taxis and buses ferried ECTS visitors to and from Sony's base at The Brewery throughout the three-day event (and consequently managed to upset ECTS organisers Blenheim by pulling people away from the show proper).

The software highlight of the Sony event was undoubtedly Psygnosis' *Ecstatica* (debuted in **Edge** 13), which now includes a new rendering routine as well as atmospheric sound. But the real star of the show was, of course, the PlayStation, presented to appease the UK trade, which will have to wait a year for the British launch. The unit itself was locked away in a glass cabinet, but mouthwatering demos of forthcoming software were played once an hour on a large video screen, and Sony treated selected individuals to private hands-on trials.

The video wall demos included *a* manta ray gliding over a beautifully rendered sandy seabed, as well as the complete, fully animated version of the dinosaur head seen in **Edge** 11, and an incredible scaling and rotating animated character from SCE's polygon racer, *Motor Toon Grand Prix* (formerly *Poly Poly Circus Grand Prix*).



Lying under glass awaiting inspection was the first PlayStation shown in the UK. Few people had seen it before

Finally, Sony cheated a little by showing pre-rendered Silicon Graphics clips from Psygnosis' *Wipeout* and *Labyrinth*. The latter (called *Legend* when it was seen in **Edge** 9) featured some beautifully smooth 3D texture-mapped caverns which will apparently run at the same speed in realtime in the actual game.



The Brewery (above) provided welcome relief from the tropical heat of the ECTS. More-intimate demos took place behind closed doors (inset)

Who is it?

Born in 1925 in Wisconsin, this man designed the first computer to use transistors instead of valves. His $7.5 million, 350,000-transistor 6600 became the most powerful computer in the world in 1963

i wish...

Madeline Canepa

'**1.** For Crystal Dynamics' success, hot products, creative marketing and full distribution.
2. That every television set sold in the shops was bundled with a standard CD-based videogames system.
3. That we could have the Christmas season every month. Just imagine those sales!
4. That the creators of the phrases 'multimedia' and 'interactive entertainment' would be shot. This is the videogames business, and we're proud of it!
5. That Congress would realise that as long as kids' hands are holding a game controller, they're not holding a gun.
6. That Hollywood agents, SAG, AFTRA and the other unions would simply go home.
7. To be free of technical limitations, or at least to know all the answers.
8. That the pink Barbie aisles in Toys 'R' Us would disappear. What's next? A pink videogames system?
9. That I had more time to play games, or four hands, so I could play two games at once.'

Madeline Canepa is executive vice-president in charge of sales and marketing at Crystal Dynamics, the company responsible for such games as *The Horde*, *Total Eclipse* and *Crash 'n Burn* for the 3DO.

Neo-Geo CD hits the street

SNK's Neo-Geo console joins the ranks of the CD generation

it is...

Seymour Cray. In 1976, working alone and designing solely on paper, he produced the 100MFLOPS Cray-1, the spiritual father of all today's supercomputers. Cray machines are still the ultimate in computing power

In the midst of the excitement surrounding the launch of the PlayStation and Saturn, SNK have rolled out their Neo-Geo CD system in Japan at a price of ¥49,800 (£320).

The launch was initiated by a six-stop tour of Japan's major towns designed to claw back some publicity from Sony and Sega. The 'Neo-Geo CD Live Tour', which kicked off in Hokkaido and travelled through Osaka and Nagoya before its grand finale in Tokyo, was the gamesplaying public's first opportunity to get their hands on the new machine since SNK announced its launch at the Tokyo Toy Show in June. The unit itself and its initial range of CD software were the main attractions, but SNK also laid on fighting tournaments organised by helpers dressed as well-known SNK videogame stars.









The 'Neo-Geo CD Live Tour' stopped off in various cities across Japan and featured the usual mixture of promotion and onstage competitions

The Neo-Geo CD is currently a front-loading system which is being pushed by SNK as a limited edition model – only 30,000 units have been manufactured. To ensure that support for the new format continues, SNK have announced that they are manufacturing a more affordable top-loading machine which is expected to arrive around December this year.

SNK obviously feel that their ageing system still has what it takes to be a viable contender in the videogame arena: apart from the addition of seven megabytes (56 Mbits) of DRAM and re-jigged VRAM and SRAM, the Neo-Geo CD has the same internals as the original cartridge unit.

The quality of most Neo-Geo software has never really been in question, but the ridiculous price tags carried by some of the games – *Viewpoint* costs £220, for example – →



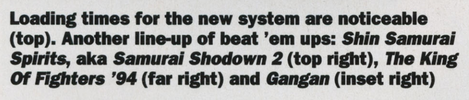


The Neo-Geo CD comes with two joypads (top). A new-style joystick (above) is also available, as is an RGB SCART lead









Loading times for the new system are noticeable (top). Another line-up of beat 'em ups: *Shin Samurai Spirits*, aka *Samurai Shodown 2* (top right), *The King Of Fighters '94* (far right) and *Gangan* (inset right)





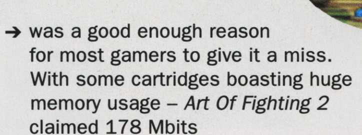


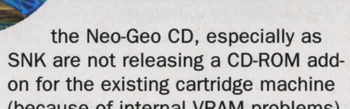
Neo-Geo CD games (top) will include *Nam '75* (centre) and ADK's *Magician Lord* (above)

BUZZ words

cyberspace

cyberspace: the virtual space of computer memory, networks and telecommunications
cyberspace: the consensual hallucination experienced daily by millions of users
cyberspace: a graphic representation of data abstracted from the banks of computers
cyberspace: bollocks more like we all know it's a made-up word so sad people can say they were 'in **cyberspace** all day' instead of being in their bedrooms all day being driven insane by those irritating modem noises trying to find dirty pictures to download

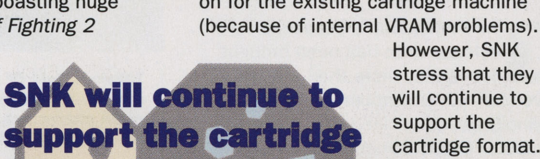




➔ was a good enough reason for most gamers to give it a miss. With some cartridges boasting huge memory usage – *Art Of Fighting 2* claimed 178 Mbits – the cost of cartridges was always destined to be high. But even the biggest Neo-Geo games will fit snugly onto a CD, and they won't have the same impact on your bank balance, either: CD conversions of older Neo-Geo games will clock in at an exceptionally affordable ¥4,800 (about £30), with the most expensive (and more recent) CD games costing up to ¥8,800 (£56). And with thirdparty developers ADK and Sammy onboard, the Neo-Geo CD can immediately boast a huge range of affordable arcade-quality titles.

In some cases, SNK are re-recording and enhancing soundtracks from existing Neo-Geo games to suit the CD format – although the exceptional quality of the music in some cartridge titles (*Last Resort* is a prime example) means that in most cases there will no noticeable change.

Owners of the existing Neo-Geo system are naturally concerned about the Neo-Geo CD, especially as SNK are not releasing a CD-ROM add-on for the existing cartridge machine (because of internal VRAM problems). However, SNK stress that they will continue to support the cartridge format. Games will always appear on cartridge first, with the CD versions following between one and two months later.



It's thought that SNK are planning to release a UK version of the Neo-Geo CD sometime next year. **E**

Available now

Priced at ¥4,800
- *Nam '75*
- *League Bowling*
- *Puzzled*
- *ASO II*
- *Top Players Golf**
- *Joy Joy Kid*
- *Super Spy*
- *Burning Fight*

Priced at ¥5,800
- *Football Frenzy*
- *Fatal Fury*
- *Last Resort*
- *Baseball Stars 2**
- *King Of The Monsters 2*

Priced at ¥6,800
- *Art Of Fighting*
- *Fatal Fury 2*

Priced at ¥7,800
- *Samurai Spirits**
- *Fatal Fury Special**
- *Art Of Fighting 2**
- *Super Sidekicks 2*
- *Top Hunter*
- *Aero Fighters 2*

Available '94

October
- *Robo Army*

November
- *Baseball Stars**
- *Gan Gan*

December
- *Samurai Spirits 2*
- *Ghost Pilots*

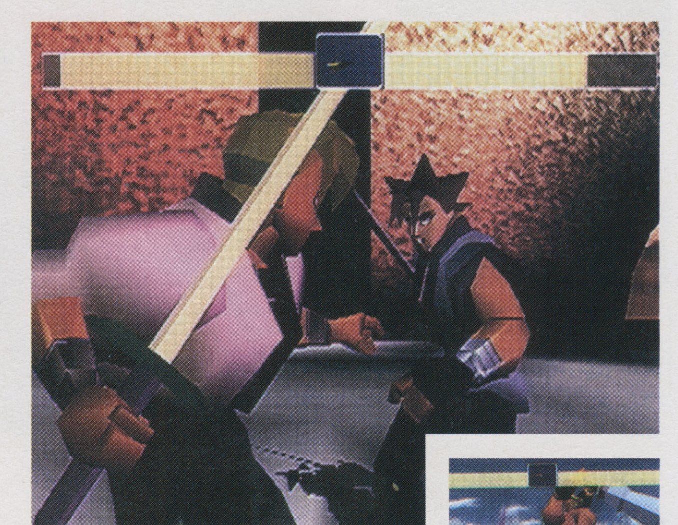
Late '94
- *Magician Lord*
- *Raguy*
- *Ninja Combat*
- *Thrash Rally*
- *Crossed Swords*
- *Ninja Commando*
- *Mutation Nation*
- *The King Of Fighters '94*

*** Re-recorded soundtracks**
¥4,800 = £30, ¥5,800 = £37, ¥6,800 = £44, ¥7,800 = £50

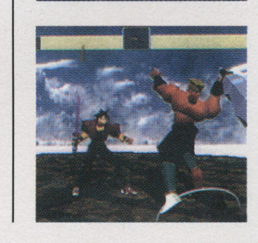
New **date** set for Sony **launch**

Sony prepare to go head-to-head with Sega's contender in the 32bit battle

The PlayStation incorporates (from left) a comm port, stereo jacks, DC out (5V), composite video, S-Video, and an RGB AV multi-out



Takara's *Tale Of The Gods Of Combat* was unveiled recently in Japan. Featuring eight characters, it looks certain to go head to head with Saturn *Virtua Fighter*



The PlayStation's Japanese release date has been brought forward by more than a week to November 30. December 9 had originally been pencilled in by Sony Computer Entertainment, but it now seems that the company is aiming to take greater advantage of the fervent pre-Christmas sales period.

The machine, which recently made its first UK appearance in London at Sony's ECTS event (see page 9), could now be set to hit Japanese shelves on the same day as the Saturn, which is also expected at the end of November.

No price or firm release date had been divulged as **Edge** went to press, although it is thought that a huge marketing campaign is waiting in the wings at Sony Computer Entertainment, which will air on national TV and penetrate the multitude of specialist games magazines.

The momentum of Sony's worldwide PlayStation campaign is increasing rapidly. A leak from the US detailing a third PlayStation coin-op developer, Bally Midway (see page 15), is sure to add greater impetus to the Sony cause.

Currently, the only companies developing coin-ops using the PlayStation chipset are Namco and Konami. Namco's coin-op operation – which recently came under the spotlight due to their recent poaching of three key arcade developers from Sega – is working on a secret 3D beat 'em up to run on the PlayStation hardware. The game, which will be released in December in coin-op form (and may make an appearance at JAMMA along with a video wall demo of PlayStation *Ridge Racer*) is expected to be a rival for Sega's long-awaited *Virtua Fighter 2*. After its spell in the arcade, it will be ported to the PlayStation for a January consumer release.

As Sony Computer Entertainment prepare for judgement day in late November, Namco have also given the company a shot in the arm with confirmation that their highly anticipated *Ridge Racer* conversion (premiered on page 28) will arrive in time for the launch, priced at an unusually low ¥6,000 (£35).





Sony's launch is dependent on racers like their own *Motor Toon GP* (above) and Namco's *Ridge Racer*

At launch

SCE are currently citing 21 games that will be available in the first month. Highlights include:

Philosoma **(SCE)**
Motor Toon GP **(SCE)**
Tama **(Tengen)**
A.IV **(Artdink)**
Victory Zone **(SCE)**
Ultimate Parodius **(Konami)**
Power Baseball '95 **(Konami)**
Ridge Racer **(Namco)**

Saturn counts on big guns

Sega's redesigned Saturn now has the backing of three major Japanese allies

The genesis of Sega's 32bit platform: an initial mock-up (above) was tweaked for the Tokyo Toy Show (centre). The final unit colour will be gunmetal grey in all territories (top)

With the launch of the Saturn just two months away, Sega Of Japan have made yet another tweak to the design of their supposedly finished machine. Following a barrage of market surveys in Japan, North America and Europe which indicated that the champagne shade was unpopular, the machine has now received an all-over gunmetal finish. According to Sega Of Japan: 'The change was decided to meet a variety of national tastes, with the additional feature that the machine will be more resistant to prolonged use' (ie the champagne model scratched easily). 'We think we have achieved a colour which will fit in with people's everyday living space with no loss of the machine's leading-edge technology.'

In a separate development to this minor cosmetic diversion, Sega's marketing strategy for the Saturn has taken an ambitious turn. Mirroring the 3DO approach of a licensed technology with multiple manufacturers, Sega have granted hardware licences to their three main Saturn development partners: JVC (who developed the machine's CD-ROM drive), Hitachi (the manufacturers of the SH2 and SH1 chips) and Yamaha (responsible for the 16bit sound board). This deal should result in Saturn-compatible machines arriving from all three manufacturers, and may even result in a major launch coup: the licensing agreement makes it possible that different models of the Saturn will be simultaneously available on day one.

Hitachi have founded a new company, Hitachi Mediaforce, specifically to deal with the one million Saturns they hope to sell in the first year. Sega and Hitachi have also announced a joint distribution deal that will see Saturn machines onsale in Hitachi's Japanese chain of high-street electrical stores.

Sega's lack of any heavyweight presence in the Japanese console sector (the Mega Drive and Mega CD have a tiny userbase in Japan) is a disadvantage; the huge sales forecasted by the Saturn partners will depend heavily on the quality of available software.

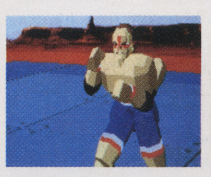
With Saturn's release date still hovering around the end of November (and also, ironically, around Sony's new PlayStation slot), SOJ are preparing a national TV and press campaign to send the right signals to potential buyers.

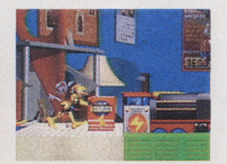
Where is it?

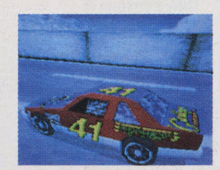
This is the place to go to see the future of interactive entertainment. Edge will be here to introduce the latest developments, and there will be plenty of opportunities for hands-on contact

At launch

Saturn's line-up for the first week of launch looks exceptionally healthy, with five main genres covered and the following titles scheduled:
Virtua Fighter **(Sega)**
Clockwork Knight **(Sega)**
Victory Goal **(Sega)**
Race Drivin' **(Tengen)**
Tama **(Tengen)**





Spearheading SOJ's software push for the Saturn are several key in-house projects (from top left, clockwise): *Virtua Fighter, Shinobi, Clockwork Knight, Daytona USA, Gale Racer* and *Panzer Dragoon*

3DO M2 packs PowerPC

3DO's second incarnation is backed by some big players

it is...

Earls Court 2, London, the location for the third Future Entertainment Show. The most exciting public computing show in Europe this year, the FES will be attended by all the big software and hardware companies

The 3DO Company have officially confirmed the existence of the Bulldog project detailed exclusively in **Edge** 12. 3DO were forced by rumours in the American broadsheets and the technical information uncovered by **Edge** to issue a special press release announcing their 'M2 Accelerator' (Bulldog is the system's working title) months before the information was scheduled to be made public.

As predicted in **Edge** 12, the biggest surprise in 3DO's announcement was the disclosure of their partners in the project. M2 has the backing of three of the most powerful names in the computer industry: IBM, Motorola and Matsushita. 'Some of our guys were the lead engineers at IBM two years ago,' reveals European director of sales and marketing John Edelson. 'They're with 3DO now, along with the guys that designed the PowerPC chip at Apple.'

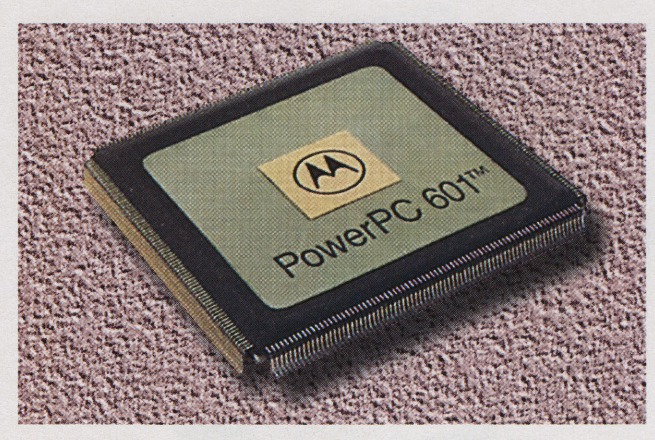
The machine's CPU is a new 64bit chip which will incorporate the PowerPC processor created by IBM, Motorola and Apple as well as custom graphics hardware. **Edge**'s sources claim that polygon rendering capability will run at 240,000 polygons per second (3DO maintain the number is even higher) and will offer true 3D perspective and full hardware Z-buffering support. 'The performance of this system is stunning. It will be five times as powerful as the PlayStation' claims a bullish Edelson.

In a move obviously designed to shift current 3DOs by persuading consumers that the existing system is future-proof, 3DO will initially release M2 as an add-on. A new self-contained model is scheduled to be made available at a later date.

Compatibility with the existing 3DO is naturally an issue of prime concern; how the existence of different levels of 3DO performance will affect software development is crucial to the success of both M1 and M2. 3DO claim that there is no question of M1 becoming obsolete by the advent of M2: 'Most licensees wil develop for 3DO because it's the largest possible market,' argues Edelson. 'There will be no abandonment of the existing hardware.' However, when pushed to predict how the multi-tiered environment will work, Edelson concedes: 'When it makes sense for companies to produce two versions of games [one for 3DO and another for 3DO M2] they'll do just that. We've had enormous developer interest in doing just that.'

Although M2 development systems aren't expected to ship until April next year, 3DO's in-house developers are already working on titles for the new hardware. American sources close to 3DO indicate that the games in progress include *Desert Strike*, as well as a 3D racing game, an action game and a *Virtua Fighter*-style beat 'em up.

The 3DO Company are relying on consumers accepting 3DO M1 as a scalable platform rather than dismissing it as a machine destined to be rendered obsolete. In order to bolster enthusiasm, the price of the American 3DO was recently slashed by $100 to $400. Just a year ago it cost $700...



The formidable PowerPC chip will be making its way into the circuitry of 3DO's 'M2 Accelerator' (aka Bulldog), set to arrive in late '95





3DO's John Edelson: 'The performance of this system is stunning. It's a world class system in every way'

3DO awards

The 3DO Company recently presented its summer awards at the 3DO Developers' Symposium in California. The 14 awards, created especially by Trip Hawkins to 'acknowledge the efforts and creativity of software companies' (and prop up some of the more embarrassing failures), were as follows:

Best Multiplayer Game: ***John Madden Football***
Best Instructional Program: ***ESPN Golf: Lower Your Score with Tom Kite (Shot Making)***
Best Japanese Title: ***Burning Soldier***
Best Use Of Artificial Intelligence: ***Sid Meir's CPU. Bach***
Most Original Title: ***Gridders***
Most Original Character: Gex
Best Acting: ***The Horde***
Best Music: ***Road Rash***
Best Sound Effects: ***FIFA International Soccer***
Best 3D game: ***Total Eclipse***
Best Animation: ***Way Of The Warrior***
Best Interface Design: ***Twisted: The Game Show***
Best Design: ***Demolition Man***
Best Game: ***Shock Wave: Invasion 2019***

Bally **Midway** play with **Sony**

Nintendo's strategic alliance is running into problems. Edge reports from the frontline of the coin-op war

As Williams prepare to roll out Nintendo's first Ultra 64 coin-op, *Cruis'n USA*, news has reached **Edge** of a potentially huge counterdeal that could place the Nintendo/Williams alliance in jeopardy.

It is thought that Sony Computer Entertainment have scored a major coup by tying up Illinois-based Bally Midway (the producers of *Mortal Kombat I & II* and *Cruis'n USA*) as a third PlayStation coin-op hardware licensee (joining Namco and Konami).

Now *Mortal Kombat III*, previously expected to be an exclusive Nintendo product for the Ultra 64, will be developed on the PlayStation coin-op hardware, with a portover to the home system scheduled for September '95 (conveniently arriving in time for the US and European PlayStation launches).

With the SGI Ultra 64 chipset still a long way from finished (the 64bit CPU is complete but the graphics chip won't be finalised until next year), the new deal could be attributed to Midway's frustration with Nintendo; in inking a deal with Sony, they have linked up with a company that has final working silicon. However, Bally are reported to be continuing work on a 3D fighting game for Nintendo's home machine.

So far, Nintendo's return to the arcades seems to have been fraught with difficulties. As reported in **Edge** 12, *Cruis'n USA* ran on a proprietary Williams 32bit arcade board when it debuted at the Summer CES, and a recent US trade evaluation of its hardware (ie prising Nintendo stickers off the chips) uncovered MIPS originals.

Similarly, although the second Ultra 64 coin-op, Rare's *Killer Instinct,* will be the first game to bring the Nintendo/SGI CPU into play, it will also use existing SGI hardware to deliver the visuals. The game is expected to arrive in mid- to late-November.





Similarities to Sega's *Out Run* bode well for *Cruis'n USA*'s gameplay, but its visuals fall short of *Ridge Racer* and *Daytona*



Sega's Titan-powered *Golden Axe: The Duel* (top), *Virtua Fighter 2* (CG demo, centre) and *Virtua Cop* are slated for next month's JAMMA

Networld + Interop '94

Edge tracks down the latest advances in network technology

it is...
The PC Engine LT, the Engine's laptop model. Launched in Japan in 1990, it has a superb colour liquid crystal display and a huge range of games, making it the ideal choice for the globetrotting games enthusiast

With networks becoming increasingly important to the future of computing, this year's Networld + Interop show at the Makuhari Messe in Tokyo was graced with the presence of many of the world's major hardware manufacturers.

The key word at the event was 'interoperability' – the ability of software to operate across a variety of different platforms. A prerequisite of interoperability, of course, is the development of advanced data transfer protocols, and this was the field in which many developers have concentrated their efforts.

The latest attempt to improve data transfer efficiency is Asynchronous Transfer Mode (ATM). ATM works by means of a 'virtual LAN' (local area network), which effectively places users in the same virtual room.

Fibre Distributing Data Interfaces are another solution to network bottlenecks. Capable of transfer rates of 100 Mb/sec, FDDIs have attracted significant attention, especially in the light of the almost exponential growth in network traffic – it is estimated that 500,000 people now use E-mail daily.



Most of the major IT multinationals were at the show, which provided a rare chance to compare products and air philosophies

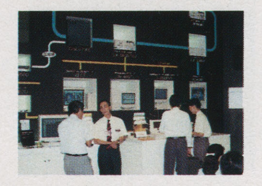
The continuing upgrading of traditional copper telephone wires to much faster fibreoptic systems has created a new impetus to provide home access to network services. Industry giants IBM, HP and Oracle presented a conference at the show exploring the potential of 'video on demand', encompassing communications technology, databases and memory.

This was part of a larger debate entitled 'Multimedia On The Internet: Current And Near Future', at the centre of which were two programs called *MBONE* and *Mosaic*. Both products were conceived with the future expansion of the Internet in mind. *MBONE* is another virtual network, based on multicast technology, which is designed to provide delay-free transmission of video and sound. *Mosaic* is an Internet interface, for use in conjunction with *Hypertext*, which automatically recognises a range of file formats, including JPEG, GIF, TIFF, BMP, MIDI, WAV and MPEG, thus allowing easier downloading.



On the corporate stands, innumerable PR representative hawked a large range of network-related products to show delegates

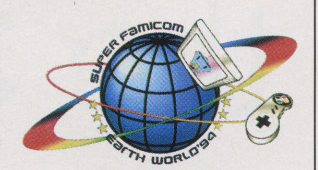




If interoperability is to become reality, all these platforms (top) will have to be able to communicate. An ATM demonstration (above)

Earth World show

Edge visits Japan's biggest consumer-oriented Super Famicom show



Data stream

Sega's investment in their new Japanese theme park, Joypolis: **$67 million**
Projected turnover of Joypolis in its first year of operation: **$34 million**
Number of jukeboxes in France: **20,000**
Number of chewing gum machines in France: **50,000**
Sales of first *Mortal Kombat* game on cartridge: **6 million**
Average price of *Mortal Kombat* cartridge: **£50**
Percentage of Atari sales accounted for by the Jaguar: **70**
Proportion of SNES players aged between six and 14: **48%**
Proportion of US homes with a SNES in 1993: **9%**
Proportion of US homes with a SNES in 1994: **18%**
Total box office take of US cinemas in 1993: **$3,034,992,100**
Size of 'elliptical convexities' (pits) on a laser disc: **1µm**
Number of pits on a 30cm laser disc: **30 billion**
Bus bandwidth of the PlayStation: **132Mb/sec**
Bus bandwidth of the Silicon Graphics Onyx: **1.2 Gb/sec**
Average cost of animation for film and video per finished second in 1986: **$10,000**
Average cost of animation for film and video per finished second in 1992: **$1,000**
The 3DO Company's losses during its first year: **$60 million**
Sales of *MS-DOS* entertainment software in the US in the first quarter of 1994: **$39 million**
Sales of *Windows* entertainment software in the US in the first quarter of 1994: **$29 million**
Apple's pre-Christmas marketing budget for the UK: **£200,000**





Tokyo's Harumi Centre was the venue for the Earth World Super Famicom show. Nintendo's *Mother 2* (right) proved that graphics aren't everything in Japan

The annual Japanese Super Famicom exhibition is one of the few computing shows not dedicated to retailers or distributors. Instead, the vast majority of visitors are ordinary gamers anxious for an early peek at the big new SFC releases. This year the show, called Earth World instead of the usual Space World, took place at the Harumi Centre, Tokyo, and, true to form, was attended by hordes of excited Japanese kids.



Capcom will be hoping that *Breath Of Fire II* manages to equal the success of the dominant Enix and Square RPGs

The central attraction on the Bandai stand was the manga-derived *Dragon Ball Z 3*, whose predecessor sold 1.2 million cartridges in Japan alone. On display too was another addition to the *Sailor Moon* series, also based on a popular manga strip.

Capcom's once gleaming image has become somewhat tarnished over the past year, and their line-up at Earth World explained why. Sequels were the order of the day, with *Rockman X2*, *Mickey And Minnie: Magical Adventure 2* and *Breath Of Fire II* all turning up to a muted reaction. Konami's offerings, though, especially *Sparkster* and *Ultimate Parodius* proved a slightly bigger draw.

Nintendo, who have chosen to stage their own show in November, had only a token presence at Earth World. However, their recently released *Mother 2* roleplayer was one of the most popular titles on display, despite its exceptionally crude graphics.

Enix and Square continued their historical rivalry at the show. Square seem to have the upper hand at the moment after poaching Enix's top artist, Akira Toriyama; the creator of the hugely successful *Dragon Ball Z* and *Dragon Quest* series, Toriyama has just designed the characters for Square's latest epic, *Chrono Trigger*. Enix, not to be outdone, displayed video footage of *Dragon Quest VI* to an enthusiastic crowd.

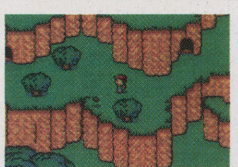
However, the biggest feature of Earth World was the lack of truly original software. The SFC market in Japan is still huge, but with Konami, Capcom and even Nintendo placing their faith in new platforms, its prospects look bleak. E

What is it?

A strange PC/Game Gear hybrid, this NEC creation has a fold-away LCD screen which means that it can be carried in one hand. Alternatively, it can be plugged into a 'power briefcase' to access CD-ROMs







***Dragon Quest IV* (top), *Chrono Trigger* (middle) and *Mother 2* (bottom) all attracted much attention at the show**

FES: play the 32X

it is...
The PC Engine LT, the Engine's laptop model. Launched in Japan in 1990, it has a superb colour liquid crystal display and a huge range of games, making it the ideal choice for the globetrotting games enthusiast

The Future Entertainment Show goes from strength to strength. Already playing host to the 3DO, CD-i and Jaguar, the show has now also been chosen by Sega Europe as the venue for the public unveiling of the 32X. Sega's 32bit Mega Drive add-on is scheduled to go onsale in November, just a month after the show, so this is a perfect opportunity for potential buyers to see what the system has to offer. Playable demos of *Virtua Racing Deluxe*, *Doom* and *Star Wars Arcade* will be on hand to help you make up your mind.

The Future Entertainment Show
Earls Court 2
26th – 30th October 1994
CD-Rom • Amiga • PC • CD-i • Consoles

Equally exciting is the news that Nintendo's first Ultra 64 coin-ops, *Cruis'n USA* (see page 11) and *Killer Instinct*, will be present at the show for visitors to play. These games, which will eventually arrive on the Ultra 64 home system, are stunningly playable; get to play them first at the Future Entertainment Show.

With a huge range of 3DO and Jaguar games on display, as well the latest PC, Amiga, SNES and Mega Drive products, the Future Entertainment Show is the place to be this autumn, whatever machine you own.

The Future Entertainment Show takes place at Earls Court 2 in London, from October 26–October 30. Tickets cost £6 in advance or £7 on the door; parties of 10 or more only have to pay a fiver each. Bookings are being taken now on 0369 4235.







Showgoers will get to play 32X games like *VR Deluxe* (above) for the first time

Over the wire

A regular spot where Edge reports on how technology will shape the news of the not-too-distant future...

From an original idea by **Richard Bird**

InterSuperNet Bulletin
Date: 4 March 1998
Time: 14:57:05

Five organisations today filed an injunction against Cim-Labs International to stop production of their DNA Expander software. The group, headed by the Committee Totally Against Abortion and the Praise Be Corporation, claim that the program is not only illegal but breaks all moral and ethical codes.

The DNA Expander system, which has taken Cim-Labs 10 years and $2 billion to develop, is designed to copy a sample of DNA from any living creature and grow it at a vastly accelerated rate in virtual storage, resulting in a biologically correct simulation of the original subject.

The Committee Totally Against Abortion claim that the software could be used to grow DNA taken from embryos into adults, and speculate that there could be instances of terminations happening simply because the child's appearance in later life does not appeal to the parent.

A spokesman for the Praise Be Corporation said today: 'This is another example of scientists playing God. If the DNA Expander gets into the wrong hands it could easily lead to an attempt at Eugenics.'

But Cim-Labs maintain that the software will only be sold to carefully chosen organisations for socially responsible purposes. They argue that it is counterproductive to proscribe a product with so many possibilities and potential benefits for humankind.

One such use, say scientists, is in the elimination of crime. The European Federal Police Force are thought to be extremely interested in the software, which could grow any organic sample taken from a crime scene into a complete image of the person from whom it originally came. It would then be a simple matter of matching the virtual criminal to the information stored on the European AOAW (AnyOneAnyWhere) central database at New Basingstoke. The police believe that if they were permitted to use the software, the clear-up rate for new investigations would approach 100 per cent.

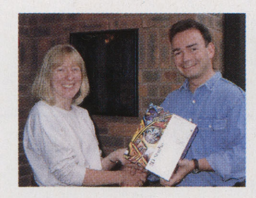
The International Supreme Court is scheduled to make a decision on the future of the program tomorrow at 14:30 GMT

...transmission ends...

Contributions to **Over The Wire** are welcome. Please send your articles (400 words max) to **Edge**, 30 Monmouth St, Bath BA1 2BW. Get your piece printed and win a year's subscription to **Edge**

This Month on Edge

Gossip, speculation and rumour from all corners of the videogames industry



Fiona Whitworth, winner of Edge's *3D Studio* competition, is presented with her prize by Nick Manning of publishers Autodesk

Atari's limitless capacity for undermining industry confidence in their Jaguar system was amply demonstrated this month when Hewland International, the production company responsible for the weekly GamesMaster TV show, gave Atari's PR agency a call.

Having explained to Atari's representative that the show needed a Jaguar machine in order to run a head-to-head challenge hosted by Dominik Diamond (to be watched by upwards of three million people), the hapless Hewland staffer was told: 'No, you bloody well can't have one. Go and buy your own like everyone else.'

Nintendo's VR system, to be called VR32, is once again at the centre of speculation. Suggestions about the form the hardware will take range from a portable battery-operated gadget (**Edge**'s bet), to a projection system that sits on the floor and casts pictures onto a wall, to (get this) a set of LCD-mounted waterproof goggles. Rumours about a VR synchronised-swimming game are unsubstantiated...

Finally, as a taster of what's in store at next month's JAMMA show, **Edge** has learned that Capcom have a powerful polygon F1 racer in the works called *Slipstream*. It's expected to be a direct rival for Namco's *Ace Drivin'*, another F1 mock-up, which runs on their *Ridge Racer* System 22 board. **Edge** has full details next month.



The exceptionally lofty Dave Perry caught up with Edge's Ed at the ECTS, where he voiced his thoughts about Edge's *Earthworm Jim* rating

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I would like to take issue with a couple of points made in Jon Ritman's letter in **Edge** 11.

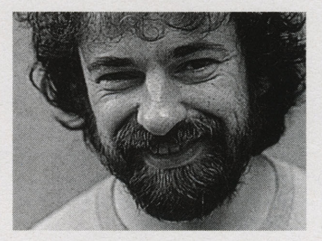
Firstly, I refuse to believe that programming in *C* reduces a 50MIPS machine to 10-20MIPS. Although not a games producer myself, I do work in the realtime embedded systems industry, and assembler language has long been cast out in favour of languages like *C* because there is generally little performance difference, especially if key routines are written in assembler.

With newer CPUs like the Pentium and PowerPC, the ordering of instructions to gain maximum performance is critical, and good *C* compilers can often do a better job than handwriting the code, as they can spot non-obvious optimisations.

That Jon Ritman doesn't like programming in *C* is fair enough; we all have our pet hates and I'm sure that he is a damn fine assembler programmer. But to make such sweeping statements about performance is misinformed and, frankly, wrong.

Matthew Pass,
Surbiton

Over to you, Mr Ritman…



John Ritman (above) aired his aversion to *C* in Edge 11. Matthew Pass is on the *C* side

Re: David Oldman's letter (**Edge** 11). At last, someone who (along with **Edge**) questions Nintendo's credibility, particularly when it comes to Project Reality. HDTV compatibility, talk of virtual reality peripherals and 'way past cool' sloganeering is all very promising, but only two companies – Sony and, yes, 3DO – seem to be investigating the possibilities of actual gameplay rather than just concentrating on sound and graphics.

While Sega promise us *Sonic*, sports games and coin-op conversions and Nintendo get ready to deliver 64bit updates of 8bit titles such as *Metroid*, *Zelda* and, doubtless, *Mario*, Sony are putting real effort into producing completely original software. And despite the obvious failures of 3DO, I would have thought **Edge** could have commended their innovation and commitment to the next generation.

Neither of these companies has previously been involved in the hardware industry. Certainly, Sony, with an entire field to play in and no commitments to an established (adolescent) audience, could usurp (although not bury) the two current videogames giants in much the same way as Sega and Nintendo usurped Atari when they could no longer cut it.

The simple point is, I wouldn't want to buy a Saturn just to play what are basically Mega 32 games with slightly better graphics and bigger intros. And I'd hate to fork out the money for a Nintendo 64bit to carry on using cartridges (the thought of it) and/or play the latest *Donkey Kong* incarnation (a Game & Watch title that is still spawning sequels!). So it seems that only Sony can cut through the sense of claustrophobia that Sega and Nintendo have created.

Finally, a point to illustrate the money-oriented cynicism of the big 'N': Trip Hawkins rightfully questions Nintendo's ability to 'compete in the new market'. Nintendo's response (avoiding the issue completely) is that sales of one particular game will generate more money than total 3DO sales in the same period. The game? *Super !@£$% Mario All-Stars*!

D Y,
Liverpool



Is *Killer Instinct* just an aggressive pose on the part of Nintendo, or is there genuine innovation behind the bravado? (See letter from D Y)

With no previous videogames history, Sony and 3DO are in the enviable position of starting with a clean slate. No ageing characters to support/rely on; no pre-conceived public image to overcome; and the inherent promise of something new. Judging by the PlayStation games **Edge** has seen, it certainly looks like there is a great deal of inventiveness in the Sony camp, while the two videogame giants seem to be suffering from a dearth of creative ideas.

Of course, the proof is in the playing: if *Donkey Kong Country* plays better than PlayStation

games with all their polygon excesses, who is **Edge** to find fault with Nintendo?

Edge 12 was the worst read ever. Was it a 'slagging off Atari' issue? I have never read so much rubbish in any magazine. You say *Kasumi Ninja* is inadequate and lacks originality, but a few pages on you praise *Super Street Fighter II* (copy of *Outlaw*, © Atari, 1978), giving it eight out of ten. Just in case you haven't noticed, all software lacks originality since Atari started the biz.

You also criticise Atari for having released only six carts for the Jaguar so far. Two things to point out. One: Atari Corp are a relatively small company and try to release as many quality products as possible. Two: how many games can you play at a time? One cart a month is just right. You guys are always complaining about the lack of softs on any Atari machine. I own 65 Lynx carts, which I was able to buy and play because Atari didn't release eight titles a day. Also, you say that Atari displayed 35 Jaguar games at the CES but most were still at an early stage. However, your sister magazine, GamesMaster, said that Atari displayed 25 games and most of them were ready. Are you trying to be funny or something?

Oh, and please find someone to review some real Retroview classics: *The Mule* (800XL), *Phoenix* (VCS, the first game with an end-of-level boss), *Donkey Kong* (Coleco/600XL, the best arcade-home translation), *Miner 2049er* (first multiformat game), *Pitfall* (VCS), *Preppie* (800XL), *One On One* (C64/800XL), *Space Panic* (arcade, first ever platform game) and more. But please, no more stuff like *Knightlore*. No-one has ever heard of these Spectrum (a real British invention) titles. I'm sorry, but British programmers just didn't hack it in the 1980s.

Thomas Holzer, Wokingham



Thomas Holzer believes Edge's derogatory remarks about the Jaguar's *Kasumi Ninja* (above) are evidence of an Atari-bashing agenda

Street Fighter II redefined the beat 'em up genre (*Outlaw*? Give us a break!). *Kasumi Ninja* has merely copied the formula without attempting to improve on it, and therefore deserves any criticism it receives. A beat 'em up starring oriental characters set against exotic backgrounds – original? Poorly implemented gameplay with unimpressive graphics – adequate?

Edge can't believe anyone is happy with the release of just one game each month for their machine. Be realistic: Jaguar owners, who have invested good money in a powerful machine, deserve a proper choice of exciting software. (Incidentally, Jaguar owners will be able to see all the machine's new games for themselves at the Future Entertainment Show in October.)

'British programmers just didn't hack it in the 1980s' has to rate as one of the worst generalisations ever. If anyone out there thinks that American and Japanese coders were producing better games during the 1980s, please write in with details…

Darrin Maunders thinks that the solution to the PC's problems lies in building extra hardware directly onto the motherboard

As a veteran of the videogames age, one of my favourite sections in **Edge** is Retroview. This, and your concentration on the quality of gameplay, are the factors which mark your journal out from the crowd. However, if you look back at the history of videogames, as you do in Retroview, one thing is apparent: the classic games seem to appear at least 18 months to two years after their respective hardware platforms have been launched. This isn't surprising: it must take developers a certain amount of time to get to grips with the new equipment and learn new programming techniques. Only after this grounding can they hope to produce the original and innovative games we all want.

For this reason, I really think you should reconsider your attitudes to the next-generation hardware. In **Edge** 12 you talk of the Atari Jaguar as not being 'hot' any more. This comment is somewhat unjust. Games machines cannot be considered fashion items like the skateboard or the hula hoop; the development costs and the nature of the market demand that the product be viable for several years. Software, on the other hand, does come and go, and at the end of the day it is the software that determines whether a machine is successful or not. Because of the lag between new hardware and quality software, you should reserve judgement on the Jaguar and 3DO until 1996, and on the Saturn and Ultra 64 until 1997.

N M Smith, Coventry

The only discrepancy in your argument is the SNES, which had games like *F-Zero*, *Pilotwings* and *Super Mario World* within weeks of launch. And there's no reason why – with the new-generation hardware doing a lot of the hard work for programmers – good, playable games shouldn't appear very early in a machine's life. We shall see…

I am a PC user who bought your magazine to see what's happening on the other side of the pond. It seems that it's still the same old game, with Sega and Nintendo going over the same tired old act. Although a couple of the dedicated games consoles, such as the Saturn, PlayStation and Ultra 64, look promising, I will probably avoid buying a console. The main reason I plumped for a PC was that it was so flexible and games were not its only forte. Sure, it's got its bottlenecks, but hopefully things will change. *Windows 4* seems to hold part of the key.

I have a solution to the problems encountered by PC users and it would only need a bit of thought by a major motherboard manufacturer.

Build a sound system directly onto the motherboard. Get a licence from Creative Labs to add Soundblaster wave synthesis into onboard circuitry.

Build Argonaut BRender hardware into the motherboard. Brender is a graphics package that is especially useful for rendering. It comes in two forms: hardware and software. It can handle 65,000 polygons a second on a 66MHz 486 and 80,000 on a 60MHz Pentium. Developers Argonaut are already planning to incorporate it into the next big Diamond Stealth 64bit graphics card.

Get id Software to write the next *Doom*-type game, *Quake* (after *Doom 2*, of course), in a BRendered version using SVGA with 16 million colours.

Add a bloody TV output, for Christ's sake!

I know this is asking a lot, but isn't it about time the PC had a true standard? If these

Continued next page

Continued

suggestions were realised, you would have the ultimate home computer. I still feel that the PC has the edge over most other formats due to its large userbase and its upgradeability, and that it will still be around long after all the PlayStations and Ultra 64s of this world have disappeared.

On a different subject, I believe that 'interactive movies' are the correct term, contrary to some reviewers' beliefs. I define an interactive movie as: 'A moving image whose progression is influenced by decisions made by the viewer'. There are many games which fulfil this definition. I think what everything is looking for is a 'virtual movie', for which you would need realtime rendering. *Under A Killing Moon* seems like a halfway house between an interactive movie and a virtual movie.

Darrin K Maunders, London

There is certainly little mileage in using sequential video clips for interactive movies. To be able to offer multiple plotlines and different endings and to ensure that the game lasts longer than an hour, you really need many hours' worth of video – as proved by *Under A Killing Moon*, which now comes on *four* CDs.

Genuine interactivity in a movie-style environment – with the player able to talk to his electronic counterparts and do anything and go anywhere within the limitations of his character's capabilities – won't come about until the entire gameworld can be rendered in realtime 3D and feature 'virtual' actors and actresses.

Congratulations on the Edgeview and general tone of issue 12. Every other magazine I'd seen that featured *Donkey Kong Country* had not been honest or responsible enough to mention the lack of vision in gameplay. This is just one example of the current wave of visually seductive but highly unchallenging games currently being developed. At the moment, development of new games and hardware is unbelievably well funded by large corporations (so different to the era of the C64 and Spectrum), but unless they start to use broader criteria than just sophisticated pictures people will stop buying games. It is up to companies to stay in touch with the people who are buying their games, and up to magazines like **Edge** to give them a hard time if they don't.

Phil Tomsett, Edinburgh

If nothing else, **Edge** is here to question: to look beyond the 'eye candy' and judge games on their gameplay.

It's unlikely that *Donkey Kong Country* will be a bad game, but the version seen at the CES did seem to have limited gameplay appeal. But of course, *Wildtrax* was a clumsy racing game until weeks before release. You can't tell with Nintendo...

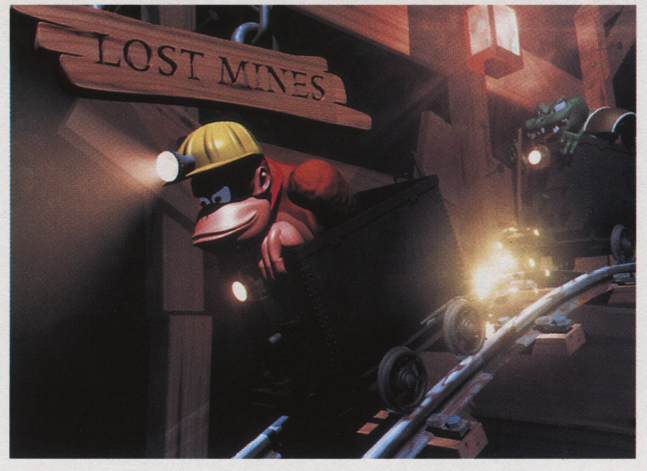
Your reply to Dean Spencer's letter (Q&A, **Edge** 12) seemed a little cynical. Nintendo may be protecting their licensing profits by making the Ultra 64 a cartridge-based machine, but there are a number of other considerations.

The article on gameplay in the same issue of **Edge** states that current CD-based games machines have drives that 'run at a snail's pace' and are 'always at least one giant leap behind the player'. Not very convincing evidence in favour of CDs. Cartridge-based machine have no moving parts and so are less likely to malfunction or wear out. They are also cheaper; how much would the Jaguar have cost if it came with an integral CD drive? The cartridges themselves provide the gamer with almost instantaneous access times, and give the developer scope to add battery back-ups (games like *The Secret Of Mana* simply could not exist without a 'save game' facility) or additional processors (*Super Mario Kart*, *Starwing*, etc).

CDs have enormous storage capacity – far greater than can be expected from a sensibly priced cartridge. But size, as they say, isn't everything. CDs may be cheaper to produce, but who benefits? All the CD software I've seen is about the same price as carts. Anyone who believes that CD-ROM prices will come down if CD becomes the dominant format should look at the price of audio CDs.

I think Nintendo are right to stay with cartridges for the foreseeable future, especially if they manage to produce 100Mbit+ cartridges for the Ultra 64. I'd be happy playing *Killer Instinct* or *Zelda V* while the others are fiddling with their drives trying to prevent their CDs mistracking.

Richard Kirman, Brighton



Nintendo seem to be emphasising *Donkey Kong Country*'s visuals rather than its gameplay. Phil Tomsett regards this as ominous

And in a similar vein...

Have you noticed how many people seem to think that, with CDs becoming an accepted standard, the price of software is going to drop. Let's forget the myth that CDs are uncopiable (you can do anything for a price) and remember that with over 600Mb available per disc, people expect more, and filling all that space costs money.

FMV clips with famous actors look like the next big thing, and this isn't helping reduce the cost of games. But developers want to be able to promote their next masterpiece as starring Luke Skywalker, and this gives them an excuse to charge ludicrous prices. How long before we get *Super FMV Street Fighter Turbo Nutter II: The Van Damme Edition* (and yet another three-page review – please, I can't take another one) with a price that would make your mortgage look like pocket money?

Finally, Raymond Westwood (Letters, **Edge** 12) seems to have neglected to take into consideration how much time people would have wasted reading his letter. Talk about trivial. Get a life, Ray. Here's to the next year of **Edge**.

Roger Isaac, Doncaster



The CD backlash starts here: both Richard Kirman and Roger Isaac are sceptical about the CD's ability to offer the playing public anything new, apart from flashy FMV and hefty prices

Nintendo face a battle to convince publishers to continue using cartridges. The lower profit margins on cartridge software has traditionally been compensated for by a huge installed userbase – as with the SNES. This is something that isn't guaranteed for the Ultra 64.

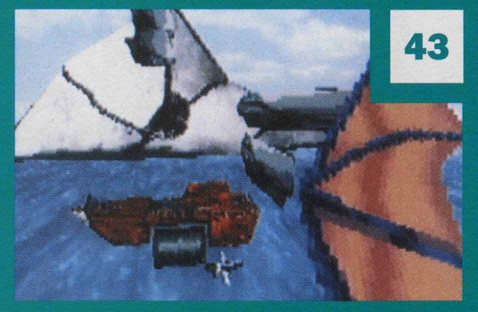
CDs full of ostentatiously expensive video footage is not what **Edge** wants to see. Video sequences can be useful for setting the scene and illustrating the progression of the story, but when you've seen them a few times the novelty dissipates.

However, games developers are gradually realising the limitations and benefits of CD-ROM. French companies like Adeline and Amazing Studio are proving that, when used intelligently, CD technology can add immensely to the overall game experience.

Ridge Racer PlayStation **Magic Carpet** PC **Burn:Cycle** CD-i **Gex** 3DO **Striker** 3DO
Clockwork Knight Saturn **Panzer Dragoon** Saturn **Tama** Saturn **Virtua Fighter** Saturn

Prescreen


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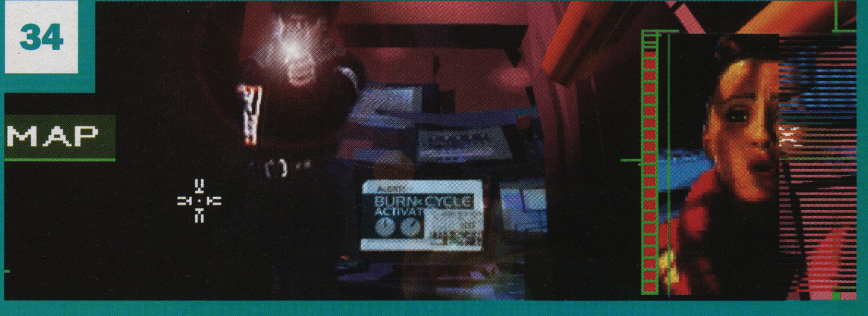

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The imminent Japanese release of Sony's PlayStation is already starting to set more than a few hearts racing. **Edge** has the first pix of the game that will show what the hardware is really capable of: *Ridge Racer*. As the shots of the 50%-finished version show, it's not quite arcade-perfect. Yet…

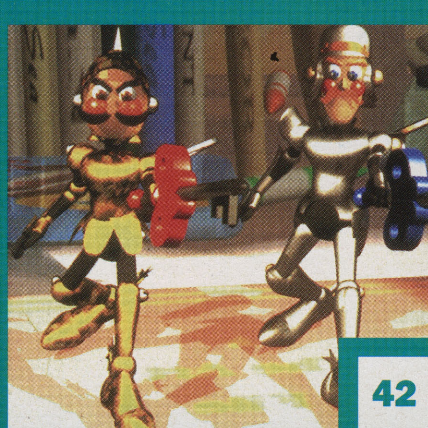
And while you're dreaming of getting your hands on *Ridge Racer*, you can check out the progress of the first batch of releases for Sega's forthcoming Saturn system. **Edge** has images from four Saturn titles – *Clockwork Knight, Panzer Dragoon, Tama* and *Virtua Fighter* – which provide ample evidence of the machine's graphical prowess and only serve to heighten the suspense surrounding its launch.

Edge also provides an early look at two newies for the 3DO, details on the latest 'interactive' release for the CD-i, and a peek at the amazing *Magic Carpet* from Bullfrog.


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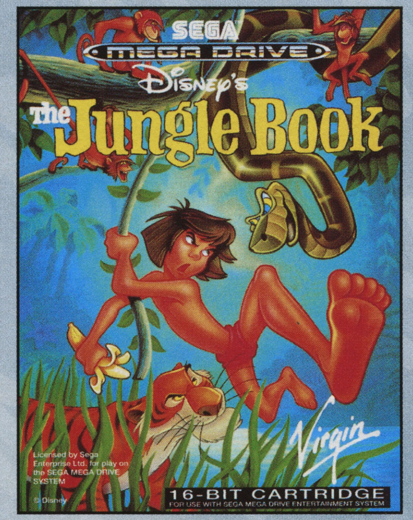
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TETRIS 2 - GAME BOY

A new dimension in Puzzle Solving action. There are nine different shapes and you must match blocks both horizontally and vertically, as well as matching shades of colour. Tetris 2 proves to be more challenging and more fun to play.
"As a majority of you will already have Tetris, this is a worthwhile second purchase"
88% GB ACTION



THE JUNGLE BOOK - MEGA DRIVE & SUPER NINTENDO

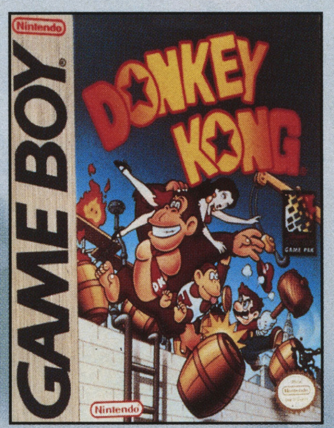
Get down to the bare necessities of life...and escort Mowgli through the jungle to the safety of the human village. Fight the boggle-eyed snake, Kaa, and defeat Shere Khan the hungry tiger in this exciting adventure based on Disney's classic!
"'The look of the movie has been captured to a tee and the sprite animation is top-notch." **84% NMS**

HMV - UNBEATABLE FOR GAMES



SUPER STREET FIGHTER II - MEGA DRIVE

The best arcade Beat 'em Up in history is back with a wopping 40 Meg 'Dragon Punch!' All your favourite characters from the original are here with new and improved moves, including the 'Flaming Dragon Punch'. If you managed to fight your way through all 12 competitors in the original version, there are four new competitors to challenge; Fei Long, Cammy, T. Hawk and Dee Jay. Can you handle life on the 'Streets'? *"Believe us, you won't be disappointed with this near-perfect version."* **96% SEGA MAGAZINE**



DONKEY KONG '94 - GAME BOY

This all-time arcade classic makes it's debut on the Game Boy. The fair maiden has been kidnapped by Donkey Kong, and it's up to Mario (you) to save her. Plenty of levels of non-stop action and a Battery Back-Up facility.
"'True to the original graphic feel, there's plenty of slick gorilla stomping action."
90% GAMESMASTER

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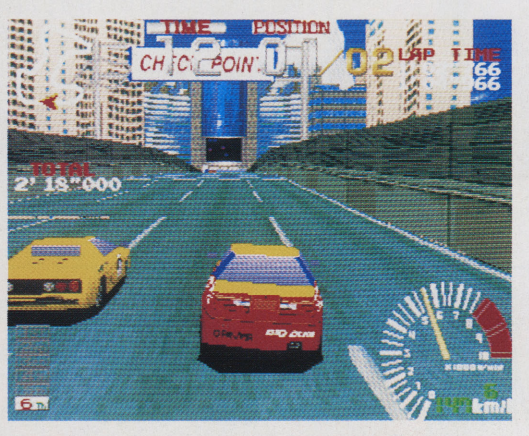
Ridge Racer

Edge has first shots of the most eagerly awaited PlayStation game at a crucial stage in its development

Format:	**PlayStation**
Publisher:	**Namco**
Developer:	**In-house**
Release:	**Dec (Japan)**
Size:	**1 CD**
Origin:	**Japan**



***Ridge Racer* is only 50% complete, but its coin-op pedigree is already apparent. The game will be available at the launch of the PlayStation**



Judging from this shot, it looks like PlayStation *Ridge Racer* may offer an external viewpoint to complement the traditional firstperson in-car perspective

When news of the PlayStation first broke in November last year, the software industry was stunned by Sony's ambitious claims for its performance. Now, with the Japanese release of the machine only a couple of months away, the time for talking is over, and consumers want to see Sony's specs authenticated by impressive software.

Coinciding with the PlayStation announcement was the news that Namco would be converting their recent arcade games for the system, including the jewel in their crown, *Ridge Racer*. The company has spent the best part of five months developing the PlayStation version and is gearing up for a release later this year.

Not only is everything from the arcade original being ported over to the PlayStation game – including all the skill levels and all the play options – but Namco are assuring players that the PlayStation version contains 'new specifications', to be revealed closer to the launch. The rumour that Namco are planning to include the link-up mode from *Ridge Racer 2* is



The textured rocks in the distance look accurate, but the car's windows certainly need improving

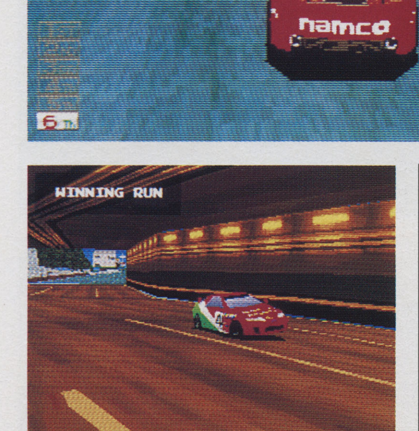


Roadside detail is virtually identical to the coin-op's in this section of the track (above). The bridge looks good, too (left)

The coin-op

Ridge Racer uses Namco's System 22 realtime visual rendering system. This hardware relies on a 32bit Motorola CPU running at 25MHz and boasts digital signal processing (like *Virtua Racing* and *Daytona*). *Ridge Racer*'s graphics run in an interlaced 640X480 mode using over 30,000 colours onscreen.

According to Namco, System 22 is more powerful than Sega's Model 2 board, with its 'TR³' chip capable of rendering 240,000 texture-mapped and (here's the difference) Gouraud-shaded polygons every second. That translates into an astonishing 400 million FLOPS (floating point operations per second).



The finished game will feature the same impressive camera angles that grace the coin-op's intro, but will also include extra features that Namco will announce soon

unconfirmed, but if it doesn't make it into the December release, it may appear in a later version.

Anyone hoping for an arcade-perfect translation may be disappointed by these shots. However, the game pictured here is only 50%-complete. Namco seem well on course to fulfil their aim of producing a game that mirrors the coin-op in every essential respect.

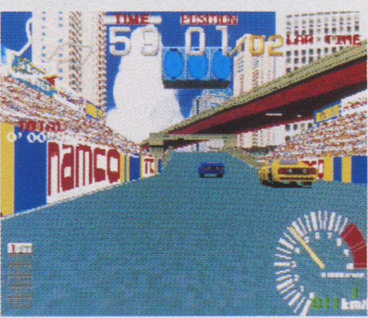
But, of course, there have been sacrifices. While the coin-op runs at 60fps, the speed of the PlayStation game is currently closer to 30fps. This is still nothing to be sniffed at, though, given that Sega's *Virtua Racing* coin-op also runs at 30fps.

Perhaps the most noticeable aspect of these pictures is the relative blockiness of the road textures. This is because the coin-op could display up to 256 colours for each individual scenery texture, whereas the maximum number in the Sony version has been cut to 16. But this minor graphical infidelity is only evident when the game is paused or when you move extremely slowly – which, let's face it, doesn't happen very often. Basically, Namco are sacrificing detail for speed, and speed is what the arcade game is all about.

Perhaps the most heartening news for *Ridge Racer* fans is that Namco are planning to sell the console game for ¥6,000 (around £35). This is much less than the ¥8,000-9,000 price of most Japanese CD software.

Next month **Edge** will be in Japan for privileged access to Namco's R&D labs, where the *Ridge Racer* conversion is being handled.





The *Ridge Racer* coin-op (top) boasts greater detail and more colours than its PlayStation equivalent (above). There's still time to catch up, though...

Magic Carpet

Format:	**PC CD-ROM**
Publisher:	**Bullfrog**
Developer:	**In-house**
Release date:	**November**
Size:	**1 CD**
Origin:	**UK**

After bewitching gamers with *Powermonger*, *Syndicate* and *Theme Park*, Brit-pack high-fliers Bullfrog prepare to cast their spell again

Guildford-based Bullfrog Productions have spent the past seven years creating some of the most involving and ingenious software in the videogames canon. But despite their success, they're not ready to put their feet up just yet. No sooner has the company's *Theme Park* rollercoastered its way to the top of the PC charts than their next project, *Magic Carpet*, appears over the horizon.

Magic Carpet sees Bullfrog moving away from the strategy games that established their reputation to produce a fast-moving 3D shoot 'em up – which is also, surprisingly, their first foray into the world of polygons. However, a frenzied adrenaline-drenched blast isn't Bullfrog's style; *Magic Carpet* is a blend of gorgeously textured graphics and tactical shooting action that bears more resemblance to a flight sim than a traditional shoot 'em up. 'I've always liked playing flight simulators,' declares Bullfrog founder **Peter Molyneux**. 'But having to wade

Magic Carpet is a wonderful blend of textured graphics and tactical shooting action that bears more resemblance to a flight sim than a traditional shoot 'em up





***Magic Carpet* gives you complete freedom to explore. Here, you can either soar above the peaks of the mountains (top) or hug the ground and wend your way through breathtakingly beautiful valleys (SVGA shots)**

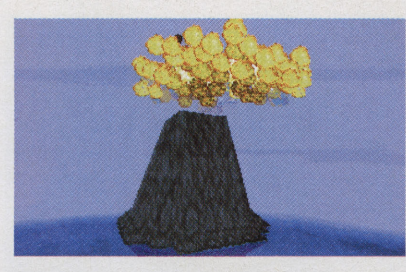


The more mana balls you collect (inset), the more powerful you become. Building a fortress like this (above) takes skill, patience and lots of balls



An embryonic castle (above and right). As soon as you've erected a castle your magic powers are protected – unless an enemy wizard attacks it

through flight manual after flight manual and having to have a degree in aviation just to get most flight sims up and running was always a real pain. So the first thing I looked at was making *Magic Carpet* very easy to play. I want it so that anyone could just pick up the mouse and start flying the carpet without having too many problems.'





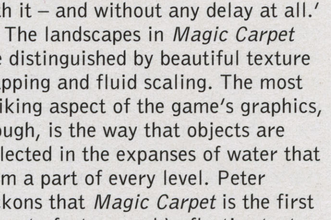
Cast a 'volcano' spell (above) and a huge mountain rises from the ground and starts belching flames

In *Magic Carpet* you play a sorcerer's apprentice whose master, in a quest for world unity, casts a spell designed to amalgamate all the land on the planet. Unfortunately, the spell goes awry and kills him. So you board your magic carpet and set out to honour his memory by accomplishing what he failed to do.

During your quest, you do battle with the forces of evil and acquire magic strength by collecting 'mana balls'. These appear after a creature has been shot, but in order to take advantage of them you must first have erected a castle to serve as your power base. As you work your way through the levels and collect more mana balls, the size of your castle increases and your character's magical strength is enhanced accordingly. Soon you have access to a range of devastating spells, with your repertoire including the ability to conjure up volcanos and slice through mountains. And this wizardry is accompanied by some equally spellbinding graphics.

Given that *Magic Carpet* is Bullfrog's first realtime 3D game, it's a stunning technical achievement. Having spent two years developing the graphics engine, Peter Molyneux is justifiably happy with the results: 'We spent a long time perfecting our 3D engine but I feel the efforts speak for themselves. We now have a totally accessible 3D environment. You can go anywhere and do just about anything with it – and without any delay at all.'

The landscapes in *Magic Carpet* are distinguished by beautiful texture mapping and fluid scaling. The most striking aspect of the game's graphics, though, is the way that objects are reflected in the expanses of water that form a part of every level. Peter reckons that *Magic Carpet* is the first game to feature real 'reflective texture mapping'. If your carpet skims over water, not only do you see its reflection below you, but the shadow it casts on the surface is rippled to match



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Continued

the motion of the waves. It's a thoroughly convincing effect and shows Bullfrog's astonishing capacity for getting details exactly right.

On a Pentium (**Edge** saw the game running on Peter's own machine) *Magic Carpet* is smooth and fast, and runs at an acceptable speed even in SVGA mode. However, Peter claims that the game is only marginally slower on a 486 DX2, so those not fortunate enough to own a state-of-the-art PC won't experience any significant reduction in performance.

In line with the current trend towards network games, *Magic Carpet* gives up to eight players the opportunity to indulge in a simultaneous battle against each other. As players of network *Doom* will testify, the excitement provided by





Your castle is guarded by an archer (top). An evil creature rises from the sea to confront you (middle) A swarm of killer bees have been disturbed (above)

'I wanted it so that anyone could just pick up the mouse and start flying the carpet without having too many problems'

multiplayer games is unrivalled. Peter recalls the first time the Bullfrog team played an eightplayer version of *Magic Carpet*: 'As soon as the game started, I cheated and gave my character all the power he would need to win. But the other players were wise to my actions and within minutes had formed an alliance. At one point, two of the other players attached rubber band spells on me, and I couldn't lose them – they were attached to me and they both started firing all sorts of spells at me. I had no choice but to use a volcano spell and killed the pair by dragging them into it.' Collective gameplay with this level of spontaneity and variety could make *Magic Carpet* a multiplayer classic.



Two fire-spitting dragons emerge from mist-wreathed mountains. The depth-cued backgrounds give the game real atmosphere

Peter believes that *Magic Carpet* also offers lone gamers enough strategic depth, visual inventiveness and honest-to-goodness *fun* to ensure that it is even more successful than Bullfrog's previous hits. He could well be right.

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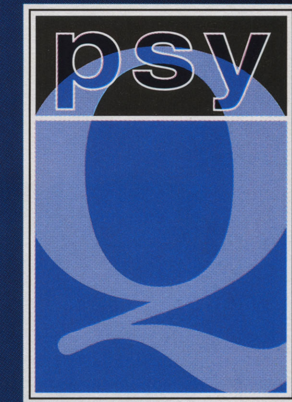
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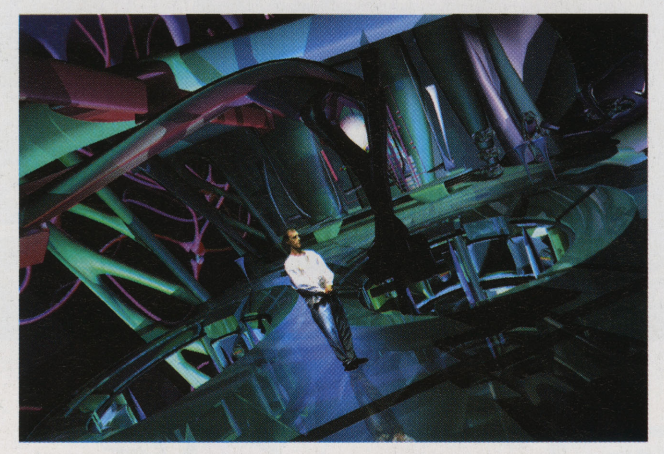
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Burn:Cycle

The interactive movie is dead; long live the interactive movie. **Edge** previews another attempt to beat Hollywood at its own game



Sol Cutter, the central character in *Burn:Cycle*, is superimposed against an SGI-rendered backdrop as he ponders his next move

Format:	**CD-i**
Publisher:	**Philips**
Developer:	**TripMedia**
Release date:	**October**
Size:	**1 CD**
Origin:	**UK**

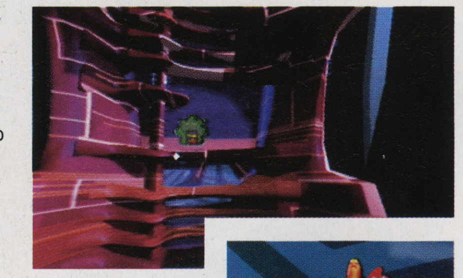
The interactive movie is a concept as old as the videogame CD itself. Welcomed by the videogames industry as the dawn of a new era of cinematic gameplay, the advent of the compact disc as a games medium gave rise to a slew of titles bearing the 'interactive movie' tag. However, it soon became apparent that the phrase was being applied indiscriminately to any game with a vaguely movie-like plot and a token amount of FMV. Releases like *Voyeur, Ground Zero Texas, The 7th Guest* and *Return To Zork* all failed to live up to their billing simply because they weren't interactive enough.

But, to their credit, developers kept trying, and now their efforts seem to be paying off. After the promising *Under A Killing Moon* (see Prescreen, Edge 12), the latest addition to the genre is TripMedia's *Burn:Cycle,* which marries a cyberpunk scenario with live-action video and a healthy dose of interactivity.

David Collier, *Burn:Cycle*'s designer, isn't impressed with previous efforts in the field. 'There sure has been a lot of crap out there,' he says. 'The label "interactive movie" is inaccurate for most of the products I've seen. They're all only superficially interactive and certainly don't have any of the character empathy or plot development of a good movie. I think [with *Burn:Cycle*] we've achieved fast interactivity and established a syntax that uses the elements we want from the movie world.'

The game has undergone numerous changes since its inception 18 months ago, not the least of which is its name. 'We approached Philips with our idea, using a comic to illustrate the plot,' recalls writer and director **Eitan Arrusi**. 'They were greatly encouraged by what they saw and so helped to fund it. *Burn:Cycle* was originally called *Logic Bomb,* but unfortunately, Jaleco had a game coming out called *Operation Logic Bomb,* so we had to call our game something else. We ended up with *Burn:Cycle.*'

Employing the same point-and-click interface as its predecessors, *Burn:Cycle* is lavishly produced, with some beautiful pre-rendered visuals. But where it differs from other games of the same type is that there's actually some substance beneath its surface. A central part of its appeal is the intriguing scenario. You take the



Set the bomb then run (top). Searching maimed characters is a useful, if morbid, exercise (above)

'There sure has been a lot of crap out there. The label "interactive movie" is inaccurate for most of the products I've seen'

David Collier, designer

role of Sol Cutter, a data thief who slips into the premises of a huge corporation called Softech with the intention of stealing certain sensitive information and then selling it for a fortune. But in mid-theft a freak power surge leaves him with a bit of a headache: a digital virus called Burn:Cycle implants itself in his head and threatens to turn his brain into jelly in two hours unless he can find a way to deactivate it.

As time ticks away and Cutter explores his surroundings, fragments of his suppressed memory surface in the form of cinematic flashbacks. These give you an insight into his background and personality and provide you with clues to solving his predicament. As you progress, the game develops into a near-perfect blend of strategy, adventure and action, with the cut scenes playing an integral role in the gameplay.

The video clips are incorporated into the proceedings in such a way that they avoid disrupting the flow of the game. They are intended only to update you on developments and add a sense of drama to events. 'I wanted to edit this like a proper movie,' explains Eitan. 'I want the player to feel that they've stepped into a world that is constantly unfolding around them – an emergent narrative.'



Another reassuring characteristic of the game is the fact that you can actually interact with the backgrounds. 'We wanted to make the *Burn:Cycle* world truly interactive,' explains Eitan, 'so that if you saw something in the background you would be able to do something with it. If you find a car, why shouldn't you be able to drive it?' Indeed, there does seem to be very little wastage in *Burn:Cycle*; virtually all the game's graphics have some gameplay-related function.

With its stirring ingame score, sumptuous rendered visuals, numerous changes of pace and compulsive storyline, *Burn:Cycle* promises to be a genuinely immersive experience. Due to be released later this year, it could well become the definitive game of its genre (and boost the CD-i's reputation in the process).

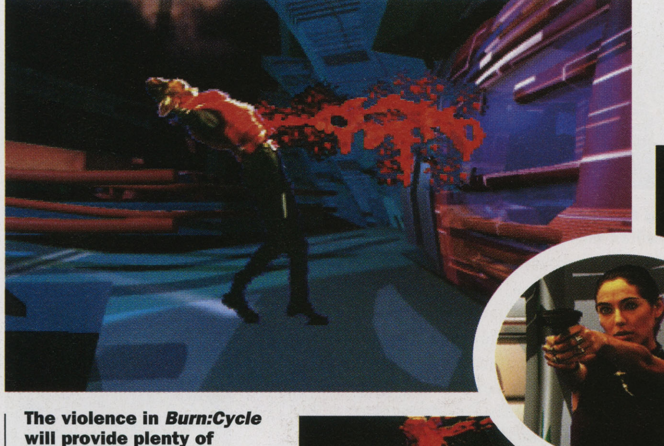








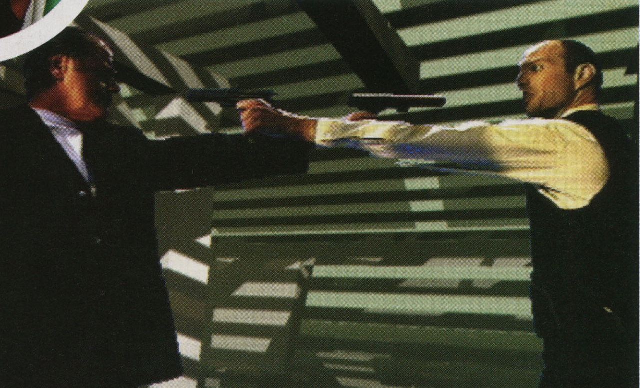
***Burn:Cycle* takes interaction seriously. You can actually get into and fly this futuristic car (above)**



The violence in *Burn:Cycle* will provide plenty of fodder for the tabloids



Although many of the scenes are explicit, they serve to add a real sense of drama to the game. Shades of Reservoir Dogs (right)?



Gex

32bit platformers are a rare breed. 32bit platformers starring reptiles are even rarer. **Edge** samples a 3DO game that is definitely one of a kind



The TV shows that have had such disastrous consequences for Gex make fleeting appearances throughout the game. As Gex faces up to an enemy, (above), an inverted Enterprise trundles across the top of the screen

Crystal Dynamics have chosen as their hero a hyperactive gecko lizard with a twisted sense of humour and the voice of Dana Gould

Format:	**3DO**
Publisher:	**Crystal Dynamics**
Developer:	**In-house**
Release date:	**November '94**
Size:	**1 CD**
Origin:	**US**

Crystal Dynamics have already gained a reputation as the 3DO's most loyal champions. *Gex* sees them heading into uncharted territory with an effort to produce the first 3DO platformer.

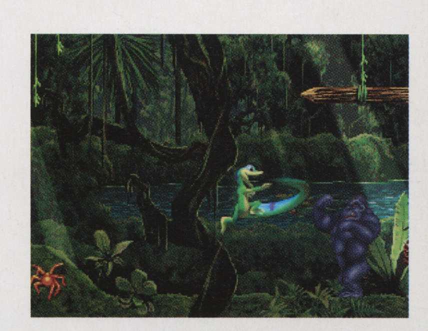
Crystal Dynamics have followed accepted videogames wisdom by making *Gex*'s central character an animal. Slightly less conventional is the fact that they've chosen as their eponymous hero a hyperactive gecko lizard with a twisted sense of humour and the voice of Dana Gould, presenter of a tacky American TV show.

According to the plot, Gex has been sucked into the Media Dimension, a place dominated by kitsch culture – '50s B-movies, lunchtime game shows, etc. His object is to destroy all the television sets in this lurid limbo and then defeat arch-enemy Rez Zul.

All Gex's movements – consisting of over 450 frames of animation – were created on SGI gear using a



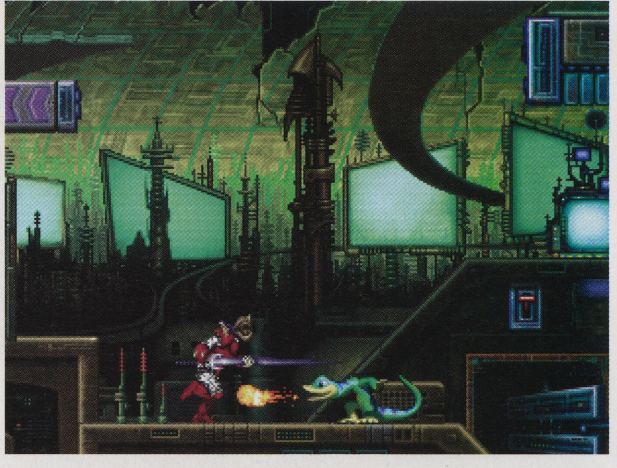
With hundreds of frames of animation, Gex is a highly versatile creature







Gex's tail flick attack is hard to execute but very satisfying when it succeeds (top). Gex evades a zombie by scaling a wall (above)



The bosses in *Gex* are both imaginative and superbly detailed (top). Gex has swallowed a bluebottle power-up (above)

process similar to that employed by Rare for *Donkey Kong Country*. What distinguishes Gex from most other platform characters, though, is that he doesn't suffer from gravitational limitations: his sucker feet enable him to shin up walls and cling to ceilings, which means he can circumvent obstacles that Sonic or Mario would find impassable.

Gex has other lizard-like resources: when confronted by an enemy he can use his thrashing tail as a weapon or lash out with his darting tongue. Power-ups are also available: bluebottles and dragonflies take the place of the more usual rings and coins and allow Gex to fly or throw fireballs.

18 months after launch, the 3DO has a representative from almost every videogame genre, with the most obvious absence being a killer platformer. Although *Gex*, with its unorthodox main character and obscure cultural references, isn't exactly standard platform fare, it could prove to be the format's equivalent of *Mario*.



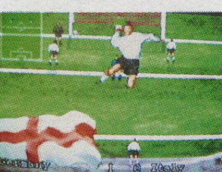
Glorious 32bit visuals like these are no guarantee that *Gex* will cut any ice this Christmas with punters eagerly awaiting the release of 16bit games *Sonic 4* and *Donkey Kong Country*

Striker 3DO

Striker is used to 16bit success, but how will it fare against FIFA in the 32bit league? **Edge** thinks it could be a close match

Format:	**3DO**
Publisher:	**Coconuts**
Developer:	**Rage Software**
Release date:	**Early '95**
Size:	**1 CD**
Origin:	**UK**







A few months ago the 3DO didn't have a single soccer game to its name. Now, with Electronic Arts' *FIFA Soccer* due for release soon and Rage Software's *Striker 3DO* (provisional title) having been in development for almost a year, football fans have plenty to look forward to.

The SNES version of *Striker* was a huge hit, and Rage are confident that the 3DO game will be equally successful. 'EA who?' said the game's lead programmer, **Tony McCabe**, when asked his opinion of EA's contender. 'Seriously,' he continued, 'I think that EA did a good job on the presentation and sound on *FIFA*, but the game itself left something to be desired. It's a reasonable arcade-style game, but it bears little or no resemblance to playing real football.

'Obviously, EA have greater resources than Rage, but what we do have is a far greater in-depth knowledge of football. We're not content with making *Striker 3DO* look and sound great. We are committed to producing a game that is fast and fun to play.'

The SNES version of *Striker* is widely regarded as one of the most frantic and playable footy games there is (in fact, it was almost too fast for its own good) and *Striker 3DO* seems to have retained all the gameplay of the original title – apart from the obvious graphical improvements, it looks like it's using the same game logic as its 16bit counterpart.

However, Tony denies that the game is a simple portover. 'It's a total rewrite,' he insists. 'None of the code has been ported from previous versions. With the 3DO we can make the game far more sophisticated, and porting any previous code would have been too limiting, as the restrictions that apply to the processor time on the



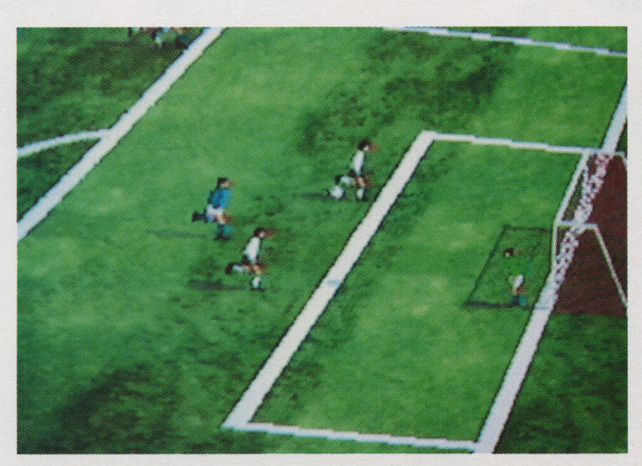
Striker **not only boasts realistic pitch textures and lifelike animation (above and top), but also includes FMV scenes (middle)**



This viewpoint is only available when you're watching a replay. In replay mode, the frame rate drops from 30fps to 15fps

'We're not content with making *Striker 3DO* look and sound great. We are committed to producing a game that is fast and fun'

Tony McCabe, lead programmer



It's all down to the goalie now as the attacking team breaks through the opposition's defence with a skilful one-two

SNES are not really a problem to the 3DO.'

Rage are concentrating primarily on using the 3DO's extra capabilities to make the game more realistic. For example, all the players are now digitised. 'We digitised the sprites from live players,' explains Tony, 'and then substantially redrew them to add detail and tidy up any rough edges. We kept the shape of the players intact so that you get the natural animation.'

To maintain speed and save memory, Tony decided to use 6bit rather than 8bit sprites. The difference between them is minimal – 8bit allows eight intensity values per colour whereas 6bit allows two, and both are limited to 32 individual colours – but using 6bit sprites resulted in a 25% memory saving.

This high view shows a lot of the pitch but isn't recommended for those who suffer from vertigo

At the moment, *Striker 3DO* doesn't offer a variety of viewpoints like *FIFA* does. But that won't bother football purists as long as the game plays well. There are a variety of views in the replay mode, though, including one in which the entire stadium rotates – the frame rate drops from 30fps to around 15fps in replay mode because there's so much happening on screen. Whether the main game will include other views still hasn't been decided: 'I guess that depends on what the marketing guys tell me to do,' says Tony.

With *Striker 3DO* already looking like a worthy successor to the 16bit game, football fans will be hoping the marketing guys don't change it too much.

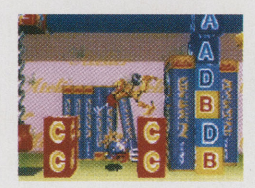


"Feed Me!"
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"Virtua Fighter"
World Champion
"SOFTIMAGE enables us to produce games where participants virtually feel the fantastic realism of total body immersion. It's the ultimate in thrills."
Naomi Ota,
Sega Ltd.
"The power of the SOFTIMAGE Creative Environment® package is awesome. Combining movie-making ingenuity with their open software environment, we created the world's first interactive sci-fi feature film."
Randy Reeves,
HyperBole Studios
"SOFTIMAGE gives the designer the flexibility, interactivity and render speed needed to meet the demanding deadlines of CD-ROM development."
David Worrall,
Head of the Advanced
Technology Group,
Psygnosis Ltd.
Sega
Psygnosis
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You know your market. They want to be fed a steady diet of in-your-face graphics and animation. And they want it now! The kind of stuff SOFTIMAGE's hyper-innovative software lets you produce at the speed of imagination. And the very same software that's helping today's out-front gamemakers cook up a whole new generation of games.
To make sure Zach gets his daily requirement of games, contact us pronto. Feeding time is soon.
SOFTIMAGE
AHEAD OF THE GAME

Clockwork Knight

With Saturn imminent, Sega are adding the final touches to their polygon platformer





Travelling through dimly lit levels (top), collecting objects (middle) and climbing over obstacles is all taken in Clockwork Knight's stride

Format:	**Saturn**
Publisher:	**Sega**
Developer:	**In-house**
Release date:	**Late Nov (Jap)**
Size:	**1 CD**
Origin:	**Japan**

Many people were appalled at the prospect that a certain blue hedgehog would be the first platform star to make an appearance on Sega's Saturn. Sonic-haters will be relieved to hear that that honour has been bestowed instead upon an armour-clad clockwork doll by the name of Pepperouchau. The game in which he stars, the appropriately titled *Clockwork Knight*, is now in an advanced state of development and is scheduled to appear on the Saturn at launch – which by current reckoning is towards the end of November.

Clockwork Knight is set inside a large American country house, which appears particularly huge to your character because he's only a few inches tall. The story revolves around a small doll called Chelsea who is trapped inside the house's cuckoo clock. Every night, as the clock strikes midnight, she sings a tearful song, and her haunting voice brings all the toys in the house to life. But one night, during an electrical blackout, she disappears. So, in true platform-hero spirit, teh valiant Pepperouchau goes in search of her.



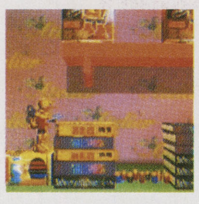
***Clockwork Knight* boasts some outlandish 3D backdrops (above and right). An SGI-rendered Pepperouchau (above right)**

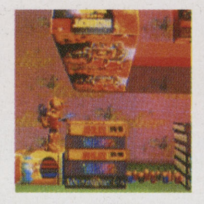
Featuring a mixture of bitmapped backgrounds and textured geometry, *Clockwork Knight* looks absolutely dazzling. Sega have used the Saturn hardware to its full capability to create some fantastic parallax effects as well as generate some beautifully smooth polygon animation.

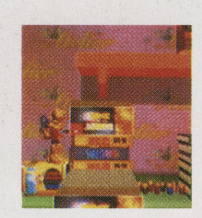
Judging by what Sega have revealed of the game (the real thing, rather than the SGI demo), a great deal of interaction is possible with the backgrounds in *Clockwork Knight*. Household objects can be knocked off shelves, clockwork trains can be commandeered and tea towels can be used to slide across slippery surfaces.

If it plays as well as it looks, Sega's clockwork hero could be the next Sonic. No wind-up. E

Featuring a mixture of bitmapped backgrounds and textured geometry, *Clockwork Knight* looks absolutely dazzling







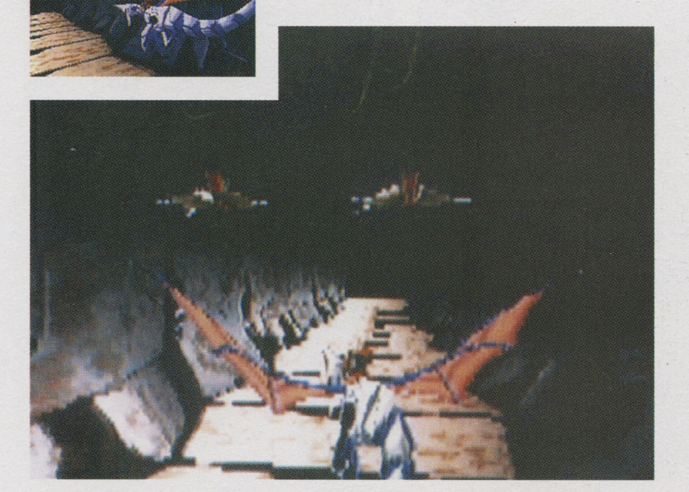
The 3D backgrounds in *Clockwork Knight* actually contribute to the gameplay. Here, a box containing a toy falls in front of you. After manoeuvring it into position, you can use it to climb onto a previously inaccessible shelf

Panzer Dragoon

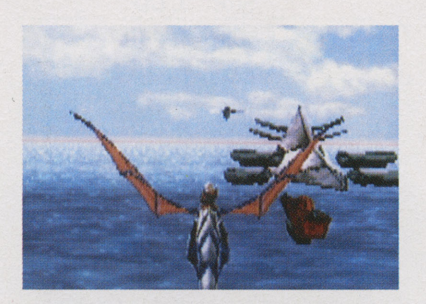
Scheduled for release shortly after the Saturn's launch, Sega's textured polygon shoot 'em up already promises to be one of the machine's most accomplished titles

Format:	**Saturn**
Publisher:	**Sega**
Developer:	**In-house**
Release date:	**TBA**
Size:	**1 CD**
Origin:	**Japan**

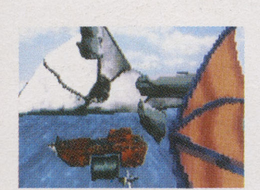
Given the Japanese preference for beat 'em ups and roleplaying games, it's surprising to see that Sega have a 3D shoot 'em up in their initial Saturn line-up. Along with *Clockwork Knight*, *Panzer Dragoon* is a game that started out as a Silicon Graphics demo almost a year ago and has since made the crossover onto the Saturn hardware.



The dragon-riding protagonist of *Panzer Dragoon* finds himself in the heart of a gloomy cave full of virtually invisible enemies







***Panzer Dragoon* is distinguished by imaginative design and lovely textured polygons. Multiple viewpoints (above right and top) allow you to appreciate the work that has gone into the graphics**

Like many other shoot 'em ups, *Panzer Dragoon* involves blasting your way through wave after wave of enemies. The difference is that the character you play rides a winged dragon and your foes are a variety of mystical creatures.

Like Sega's polygon-based coin-ops, *Panzer Dragoon* boasts multiple viewpoints. Each of which offers specific advantages, but Sega claim that if you want to make any real progress you have to use all of them.

Panzer Dragoon's textured graphics are expertly drawn and have a genuine fantasy aspect. It would have been easy for Sega to employ a familiar space scenario but, as with *Clockwork Knight*, an original graphic style has lifted what could have been a fairly ordinary game into one that looks truly different.

An original graphic style has lifted what could have been a fairly ordinary game into one that looks truly different

Tama

Tama is the game that completes the Saturn launch line-up. **Edge** witnesses the resurrection of a classic genre

Format:	**Sega Saturn**
Publisher:	**Tengen**
Developer:	**In-house**
Release date:	**Nov (Japan)**
Size:	**1 CD**
Origin:	**Japan**

Tama is the Japanese word for ball, and in a sense developers Tengen have come full circle with their forthcoming Sega Saturn game, set to be one of the first thirdparty releases for the machine. Tengen were established to publish home computer conversions of Atari Games' coin-ops, and it was Atari who first proved that there was gameplay in balls with their innovative arcade machine, *Marble Madness*.

Released in 1985, *Marble Madness* took as its foundation a realistic simulation of ball dynamics and added some colourful isometric graphics and a trackball to create one of videogames' genuine originals. A trickle of copycat titles followed on the home computers of the day – notably *Gyroscope, Spindizzy* and *Bobby Bearing* – but by the late 1980s the genre was all but dead. Only Asciiware's *Spindizzy Worlds* and Taito's *Cameltry*, both for the Super Famicom, showed that the 'roll 'em up' still had some life in it.

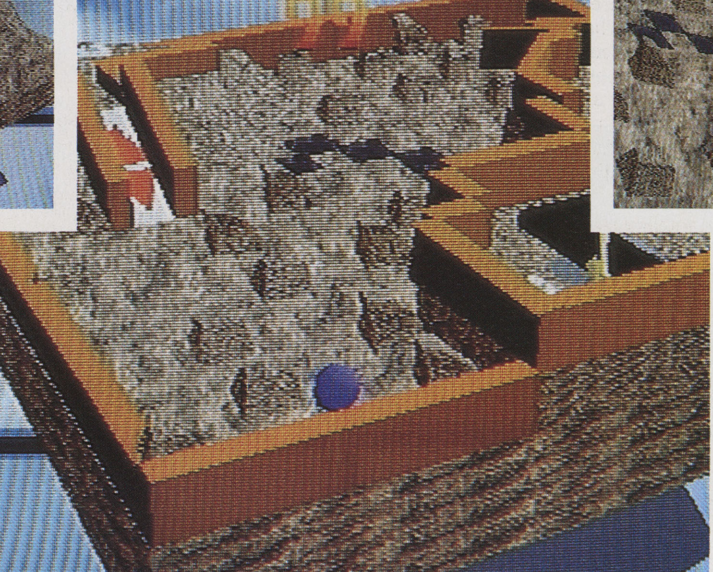
Bearing more than a passing resemblance to one of the challenges in Channel 4's The Crystal Maze, the gameplay in *Tama* reverses the concept of *Marble Madness*. Instead of controlling the ball, you control the course, which you can tilt, twist and rotate in order to make the ball move in the required direction. The object is to steer the ball into a goal before a time limit runs out.

Each course, or 'field', in *Tama* features

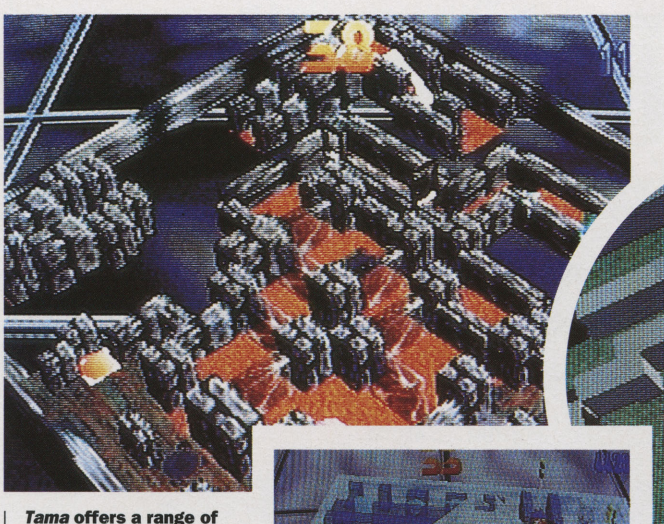


Zooming out fully reveals the nice mirrored backgrounds upon which all the fields lie (above)

For fine control, you can zoom right into the field (above). The goal is the chequered flag to the right



On this field, the goal is much higher than on the field you start the game on. You have to cross the block-strewn landscape, make it up the ramp, then get around to the right



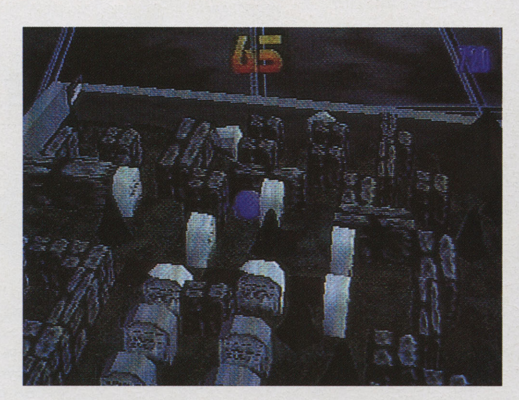
Tama offers a range of views and gives you considerable control over the angle of tilt

Getting up the ramp at the centre of this level will take some doing (above). Being able to zoom in for a closer view is a crucial part of the game (above right)

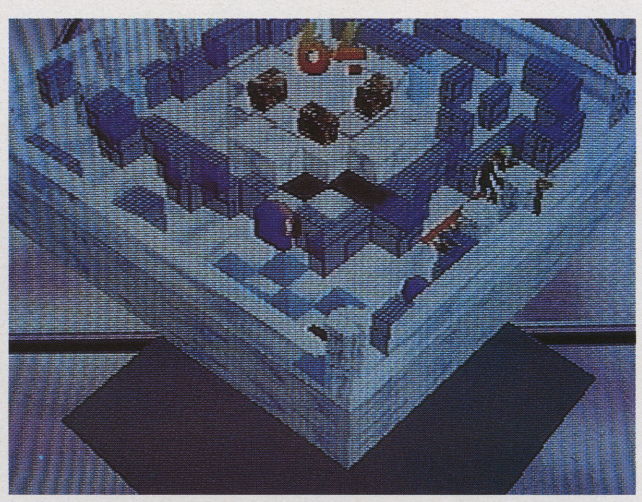
a maze consisting of walls, ramps, steps plus one or more unusual obstacles and traps.

There are no enemies, so the game is a simple race against time, but, amazingly, the pared down gameplay is accompanied by a storyline: bad balls, created by an evil machine, have taken control of Balls World, and the good balls have to try and win it back. This is resoundingly silly by any standards, even those of the Japanese, but it does allow an excuse for setting the fields in different locations, including forests, mountains, plains, glaciers, athletics tracks and even a cemetery. As might by expected, each type of field has its own peculiar type of terrain which affects the balls' movement in different ways and gives the action some variety.

Despite its impressive texture-mapped geometry, *Tama* is unlikely to feature highly in Sega's software push for the Saturn. As long as it delivers everything it promises, the Japanese penchant for puzzle-oriented arcade games should secure it a niche in the market, but with *Clockwork Knight* and *Virtua Fighter* also scheduled for the first week of launch, it could find itself well back into the shadows. E



On the spooky cemetery levels, the walls and obstacles are made out of gravestones and obelisks



The glacier levels are, unsurprisingly, constructed out of of blocks of ice, which makes controlling the ball's movements particularly tricky

Virtua Fighter

Sega's polygon beat 'em up is starting to take shape on the Saturn. **Edge** gets technical with developers AM2

The higher resolution of this 45%-complete version (above) makes it notably more impressive than the low-res, low-polygon demo Sega exhibited at the Tokyo Toy Show (right)

Format:	**Saturn**
Publisher:	**Sega**
Developer:	**AM2**
Release date:	**November**
Size:	**1 CD**
Origin:	**Japan**

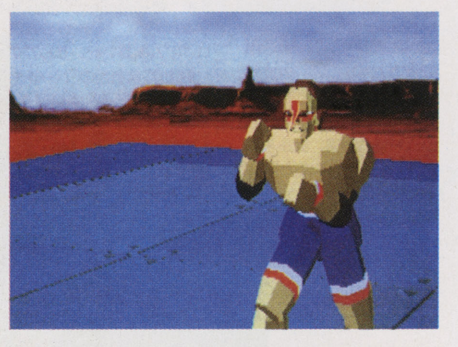
If there's one game that oozes over-the-shoulder appeal, it's the arcade version of *Virtua Fighter*. To date, there's never been a more visually exciting beat 'em up, and Sega's main arcade division, AM2, have spent the best part of four-and-a-half months trying to ween all the moves, graphics and playability of the Model 1 arcade game onto Sega's upcoming 32bit Saturn machine.

At the 10%-complete stage, Saturn *Virtua Fighter* naturally looked crude and blocky. But as the characters in the game were composed of only 100 polygons compared to the arcade's 2,000, this was no real surprise. Now, however, things look very different. The polygon count is slowly creeping up and the solid yet slick look of the arcade version is gradually beginning to surface.

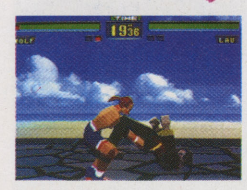
But it's not just a simple case of getting a graphic artist to model graphics with an increased number of polygons. Unlike the Model 1 board, the Saturn has no custom polygon hardware, so the machine's twin CPUs have to bear all the processing burden. Sega's legendary coin-op designer, **Yu Suzuki**, who is heading the AM2 effort, is currently working on an acceleration program to bypass this bottleneck. He explains: 'In order to get over the problem of the hardware difference [between Saturn and the Model 1 board] we're preparing a high-speed program and improving the display capability. When you try to program a character with an increased number of polygons, processing which took 1/30th of a second can end up taking 1/15th of a second. The more processes there are, the slower it gets. We have to write a program which can run in 1/30th of a second even with a greater number of polygons.'

The quality of the Saturn graphics in the 45%-complete version has been greatly improved by the recent switch to a higher resolution (640X224 from 320X224).This makes a total of 143,360 pixels, which brings the game closer to the resolution of the coin-op – 190,464 pixels at 496x384.

Despite the fact that the finished Saturn game will probably feature fewer polygons than the coin-op, it's likely that *Virtua Fighter* devotees will find it hard to



Wolf is made up of 550 polygons, while the arena uses 220. Texture mapping will reduce this count



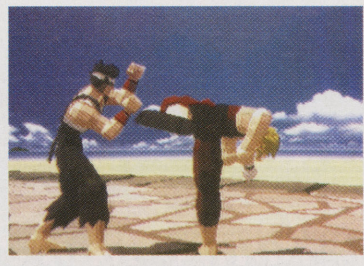
Wolf grapples the usually nimble Kage to the floor. All 700 arcade moves will be included on the Saturn

It's possible for the Saturn version to achieve the same effect with 1,000 polygons that the arcade version needs 1,500 to create

tell the difference between the arcade original and the home version. This is only possible because of the Saturn's texture-mapping abilities. Put simply, Sega's Model 1 arcade board was nothing but a polygon generator. All the floors and characters in the game were constructed from polygons (although the backdrops were bitmaps), and minor details like facial expressions and the belts and hats of some of the characters were created by adding extra polygons.

The Saturn version, however, will be using texture mapping to provide such detail: the polygons that were used for the eyes, ears and mouth, for example, will be replaced with textures. So, in theory, the Saturn version could be just as convincing as its arcade counterpart even though it uses relatively few polygons.

In fact, Suzuki claims that it's possible for the Saturn version to achieve the same effect with 1,000 polygons that the arcade version needs 1,500 to create. One AM2 programmer even went so far as to suggest that 'if 1,200 polygons are used for each character, the Saturn version will look more or less on a par with the arcade game.'



The arcade version uses between 1,500 and 2,500 polygons per fighter

Suzuki's original task was to get 1,000 polygons running in the Saturn version. This objective was reached by the time the Tokyo Toy Show took place in June this year (although Sega admit that the demo seen by **Edge** at the show was the result of two weeks of rush work). Now, with the Saturn version making use of about 1,300 polygons in each scene (550 per character and 220 for the ground), Suzuki is hinting that it might eventually be possible for the Saturn characters to reach the magic 2,000 polygon mark.

Virtua Fighter will be hitting Japanese shelves to coincide with the launch of the Saturn in late November. Count on Edge to be first in line for coverage.

Processing

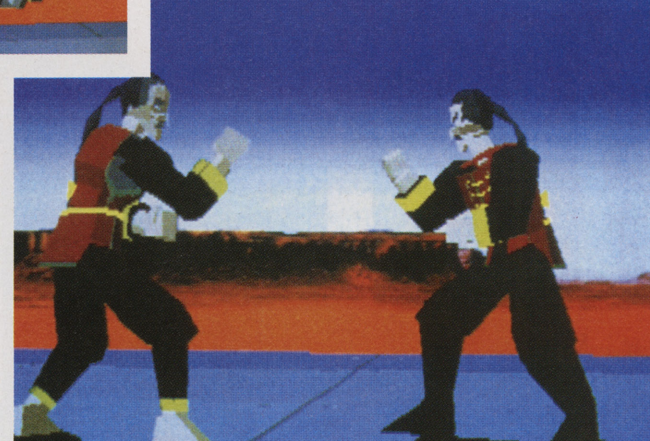
Although widely acclaimed for its graphical appeal, there's more to *Virtua Fighter* than meets the eye.

The fluid camera movements and jaw-dropping animation are created by means of high-speed processing. All the processing needed for each frame of *Virtua Fighter* – from the actual calculations to the point at which things happen on-screen – is completed in 1/30th of a second – 0.033 seconds or 33 milliseconds and then looped.

The 'high-speed program' mentioned by Yu Suzuki (see left) is primarily concerned with minimising the time that the CPU waits for the next process during the program looping. 'We are working at a level where if we save one millisecond we can display 100 more polygons,' says Suzuki.

For the Saturn version to accurately replicate the movement of the arcade, the machine must carry out 1 million operations every 1/30th of a second. For the record, one processing step on the Saturn takes 35 nanoseconds, or 35 thousand-millionths of a second.





Saturn *Virtua Fighter* uses texture mapping to replicate some of the character detail that was achieved by polygons in the Model 1 coin-op. Even at this stage it looks good



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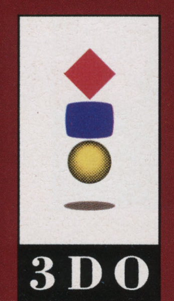
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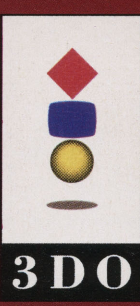
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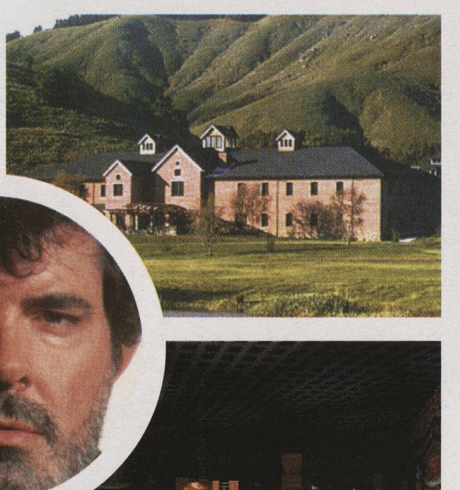


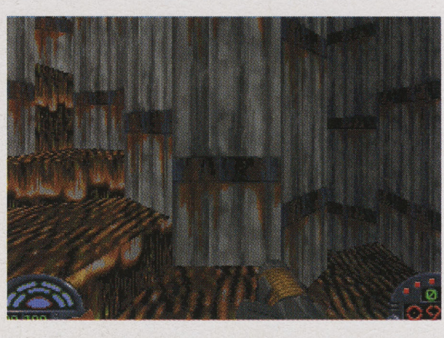
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'Movies and videogames will always co-exist. People will always want to have a story told to them and they will also like to play games where you have some control over the outcome. There will be movies and there will be games, and the games will look like movies'

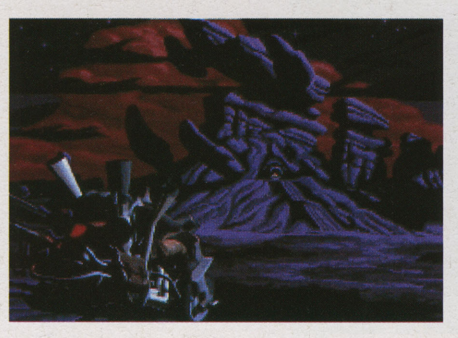
George Lucas

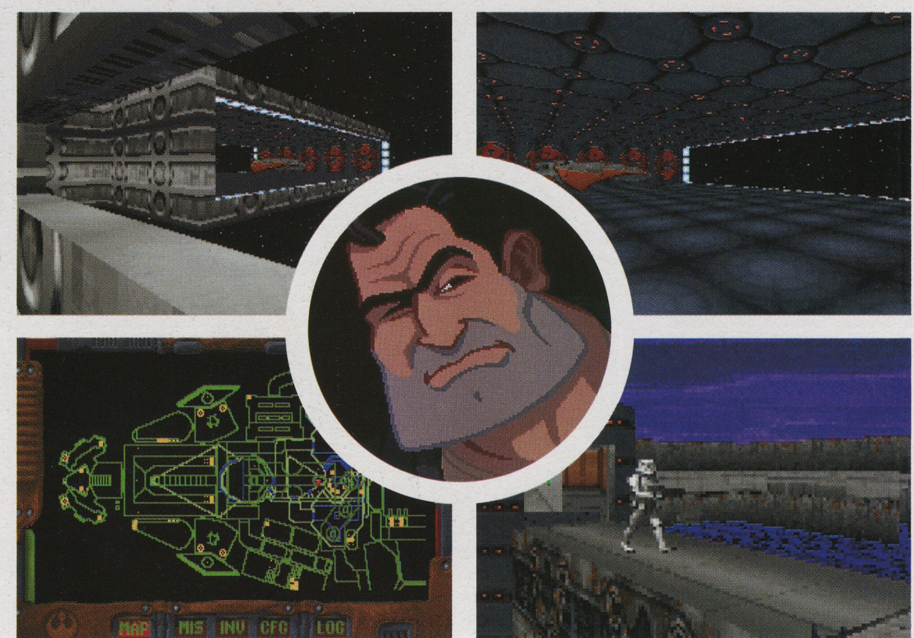






Shots of *Dark Forces*, *The Dig*, *Full Throttle*, Skywalker Ranch and George Lucas





LucasArts

With three releases in the offing, LucasArts are gearing up for a major assault on the games market. **Edge** visits the US for the latest intelligence from the Lucas camp



Anyone requiring proof of the symbiotic relationship between films and videogames need look no further than George Lucas. A filmmaker by trade, Lucas recognised the creative potential of videogames – and the essential similarities between the two disciplines – when the games industry was still in its infancy. The result was the growth of an entertainment empire that has become a superpower in both spheres.

Lucas' career was launched into orbit in 1977 with the megabuck-grossing sci-fi spectacular Star Wars. The film, which spawned two equally successful sequels, not only made Lucas' name but established Industrial Light And Magic, the company he set up to provide the visual effects for the movie, as undisputed leaders in their field. Realising that the combination of creativity and technology that ILM specialised in was also what videogames depended on, Lucas went interactive in 1982.

The first products from Lucas' new games division, Lucasfilm Games, were *Ballblazer* and the revolutionary fractal-based *Rescue On Fractalus* and *Koronis Rift*, for the Atari 800 and later the C64. They were followed by games like *Maniac Mansion* and *Monkey Island*, which confirmed Lucasfilms as a major force in the videogames market.

The early 1990s saw the first titles released under the





LucasArts label. Focusing primarily on the PC, LucasArts have been resposible for a string of hits, including *Day Of The Tentacle*, *Sam And Max Hit The Road* and *X-Wing*, all of which remain among the most highly regarded games ever released for the system.

Since 1978, the Lucas empire has been based in rural Marin County, a few miles north of San Francisco. After the completion of Star Wars, Lucas bought 5,000 acres of rolling farmland in the area, named it Skywalker Ranch, and transplanted ILM lock, stock and barrel from their original location in the northern Los Angeles suburb of Van Nuys.

The creative community of Skywalker Ranch value their privacy, so it was a rare privilege for journalists to be admitted. Unfortunately, George Lucas himself was keeping a low profile, and Darth Vader and R2-D2 were nowhere to be seen, but **Edge** did get to meet the LucasArts team and ask them about their current projects as well as their plans for the future.

'Sony have a history of experimenting with their products in the market. Is the PlayStation an experiment or is it a truly dedicated entry into the games environment?'
Randy Komisar, president, LucasArts

For the last couple of years, LucasArts have been working on three major new products: *Dark Forces*, *Full Throttle*, and *The Dig*.



The most promising title in LucasArts' winter release schedule is *Dark Forces*, their very own *Doom*-style arcade adventure. You play a Rebel spy whose mission is to infiltrate a Star Destroyer and steal the Death Star blueprints

Dark Forces has got PC owners salivating because it looks nicer and is reputed to play better than *Doom*. Containing a scenario contemporaneous with the Star Wars story, it's a firstperson arcade shoot 'em up set in a fully texture-mapped environment. The similarities with *Doom* are unavoidable, but lead programmer **Darren Stinnett** denies any plagiarism. 'We didn't know about *Doom* when we started coding this game,' he asserts, 'but when it did come out it made us set our sights a bit higher.'

Dark Forces includes subtleties lacking in *Doom*, such as a plot. You play an agent working for the Rebel Alliance whose mission is to secure the plans for the Death Star and investigate a new breed of soldier called the Dark Trooper. 'We wanted to have a purpose to our game, so that it wasn't just gunplay all the time,' says Darren. '*Dark Forces* actually started out as a Luke Skywalker game – it was even called *Jedi* originally. But as we tried to mould the Star Wars story into a game, we found that we were limited by what was already there. So we decided to branch off in a new direction. We wanted people to really believe that they were on a Star Destroyer, so there's all sorts of background stuff that goes on, such as people being paged and TIE fighters taking off.'

The team were motivated by a desire to produce a game that was more strategic than the traditional shoot 'em up. 'We constructed it so that we don't just throw more and more at

players – they have to actually learn how to beat the monsters,' says Darren. Over 20 different enemies (from probe droids to garbage compactors) are featured in the game, as well as nine different weapons, many of which are dual-purpose.

According to LucasArts, id Software, the creators of *Doom*, tried out *Dark Forces* at the CES and were very impressed. 'We've loaded up *Doom*'s graphics on our engine and we've found that, in most areas, ours is faster,' claims Darren. 'On a 66MHz 486 PC the engine runs at 25 and 30 frames per second.'

Darren is also keen to emphasise how big *Dark Forces* is. He reckons that it would take you about 40 hours to complete, even if you had some idea of what your goal was (although there is a map to prevent players getting irretrievably lost). 'The thing is that this is the Star Wars universe and people will want to wander around,' explains Darren. 'The level designers are actually architects and they've constructed environments that make a lot of sense. They don't just randomly throw stuff at you. They've used the actual blueprints from Star Wars and so they've faithfully recreated ships and locations from the film.'



Clockwise from top: Randy Komisar, president; Justin Chin, *DF* lead artist; Winston Wolf, *DF* programmer; Ray Gresko, *DF* 3D programmer; Darren Stinnett, *DF* project leader); Ed Kilham, Larry Holland (middle), designers, *X-Wing/TIE Fighter*)

Full Throttle

is the latest in a long line of groundbreaking graphic adventures from the Lucas stable which started with *Maniac Mansion* and includes *The Secret Of Monkey Island*, *Day Of The Tentacle* and *Sam And Max Hit The Road*. Many of the programmers and animators who contributed to *Day Of The Tentacle* are now among the 20 people working on *Full Throttle*. The team includes background artists, 2D artists, 3D artists, chief technologists, programmers and probably a ground support crew of caterers and gaffers. Project leader **Tim Schafer** believes that teams of this size will become standard; the game production process is maturing, and the days are gone when you could get away with just one person producing the code, graphics and sound.

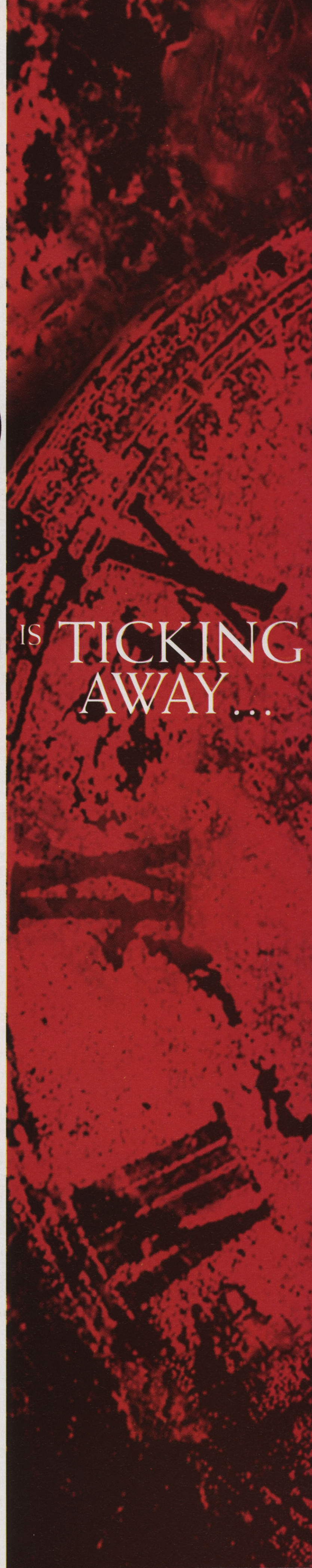
The *Full Throttle* gameworld is an apocalyptic place. You play the role of a biker who has got himself into a spot of trouble with the law. The plot revolves around avoiding the police and doing battle with sundry bad guys who don't like the cut of your leather jacket.

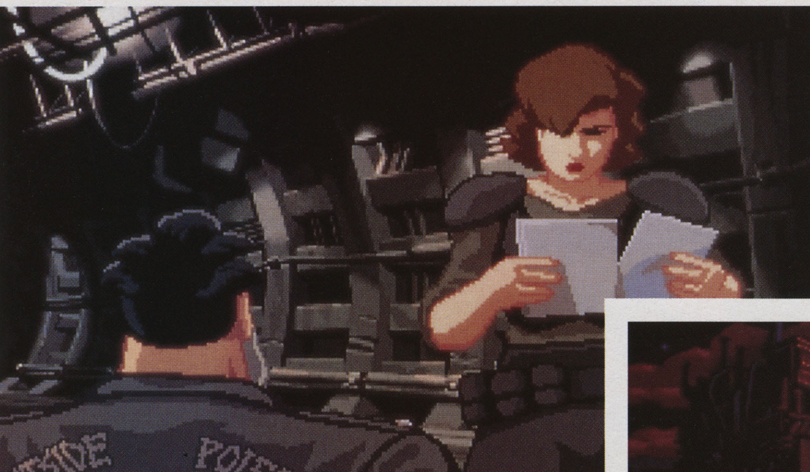
'You couldn't do a game about a biker and have him go to libraries,' laughs lead artist **Peter Chan**. 'He had to get on a motorbike and punch people.' Peter maintains that *Full Throttle* isn't intended to be a beat 'em up, though: 'It still has the same puzzlesolving structure as all our other adventure games.'

Full Throttle won't include as much humour as *Day Of The Tentacle*. 'It's not a gag-oriented adventure at all,' says Tim, 'but



The *Dark Forces* team have been working on the game for over a year. They reckon that their engine is quicker, better and prettier than id Software's





Full Throttle, LucasArts' latest graphic adventure, uses both 2D and 3D graphics in conjunction with hand-drawn animated backgrounds

Full Throttle is set in a futuristic world, not unlike the one Mad Max inhabits. You play an outlaw biker on a mission to steer clear of the law. The game will be released in late '94 on CD-ROM only (leather trousers not included)

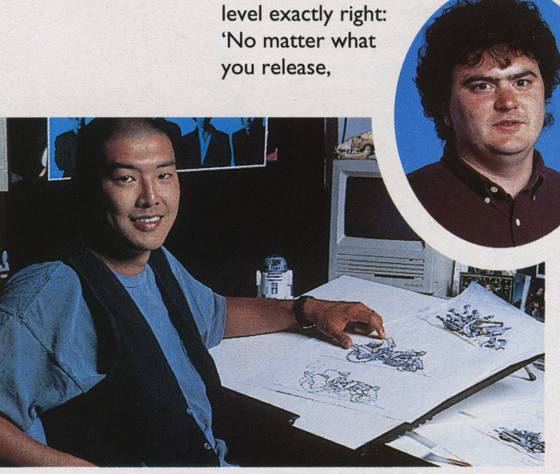
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it's funny because it takes itself so seriously.' Peter concurs: 'It's like an action movie with comedic lines like "make my day". There's a lot of comedy in something like that.'

Full Throttle is likely to provide more of a challenge than *Tentacle*, which attracted criticism for being too easy. 'When we originally tested *Day Of the Tentacle* it was way too hard, so there were some things we streamlined a little bit,' recalls Tim. But he feels that it is almost impossible to get a game's difficulty level exactly right: 'No matter what you release, some people will sit down and just plough through it, just so they can brag about it on the Net.'

The *Full Throttle* team have become accustomed to the benefits of CD-ROM and most would now be reluctant to return to floppy-based games. 'It's sort of like an addiction,' says Tim. 'I don't know if I could bring myself to make a game for floppy now. You get used to the digital sound and the streaming fullscreen animation. I can't imagine returning to the days when we had to ask the animators to make just one of a character's fingers move.'



All of *Full Throttle*'s graphics were originally hand-drawn by lead artist Peter Chan (above). *Full Throttle* project leader Tim Schafer (inset)

LucasArts' third

major game, *The Dig*, has attracted a lot of attention recently due to the much-trumpeted involvement of George Lucas' fellow movie wunderkind Steven Spielberg. This came about, explains LucasArts president **Randy Komisar**, because 'Spielberg is a gamer. And he came to us with a game idea that he had put together in the process of putting together an episode of Amazing Stories. In reality, it's not a property that was developed in a TV or film environment. It's a property that is original to the gaming environment.'

Unfortunately, LucasArts are keeping *The Dig* under wraps at the moment, so gamers will have to wait to see what these two giants of the entertainment industry produce.

Surprisingly, given LucasArts' background, Komisar feels that the traditional movie licence is a dead end. 'I think that we've got a completely different medium here. We've got an opportunity to create products which rival, if not exceed, what we can get from Hollywood,' he says. 'The reason that we work within the Star Wars universe isn't because we get to take advantage of the Star Wars films, but because it's such a rich environment.'

Komisar is also sceptical about the importance of

'Nintendo have got $3 billion sitting in the bank, so they've got a considerable amount of money to pump into marketing the Ultra 64. The question is, can they bring SGI down to consumer price and accessibility?'

Randy Komisar, president, LucasArts

interactive television, at least in the short term. 'There are certainly opportunities in the future and LucasArts will have a role there, but people's expectations about what interactive TV will deliver are grossly exaggerated. It's going to be much further off than we expected and it's going to be of a much lower quality than we assume. I do believe that eventually the right infrastructure will be in place, but I'm not sure what the content will look like.'

But he believes that new developments, like interactive television, are destined to have a profound effect on the nature of videogames. 'You're going to get really interactive environments. When you begin to look at network environments, whether online or through the TV, there's going to be an opportunity to interact with other people. You will have a whole range of experiences, whether it be playing flight sims with each other or actually being characters in a story. I really see these games becoming environments.'







Steven Spielberg co-wrote the storyline for *The Dig*, a point-and-click adventure in which you play an astronaut who gets sucked into another dimension and has to solve its mysteries before he can go home

Komisar is looking forward to the new 32bit and 64bit formats because they will enable the company to use realtime graphics generation to create a new type of interactive experience. Like everyone else, he can only speculate about which of the next-generation machines will become dominant, but he expresses doubts about how the newcomers to the hardware field will perform.

'Sony come from a heritage of consumer electronics and they are very powerful. The question is, can they really play in this marketplace? How committed are they? They have a history of experimenting with their products in the marketplace. Is the PlayStation an experiment or a truly dedicated entry into the games environment?

'3DO had a head start which was squandered. When can their new technology come out? Will they lose all their current developers before they get a chance to really compete?'

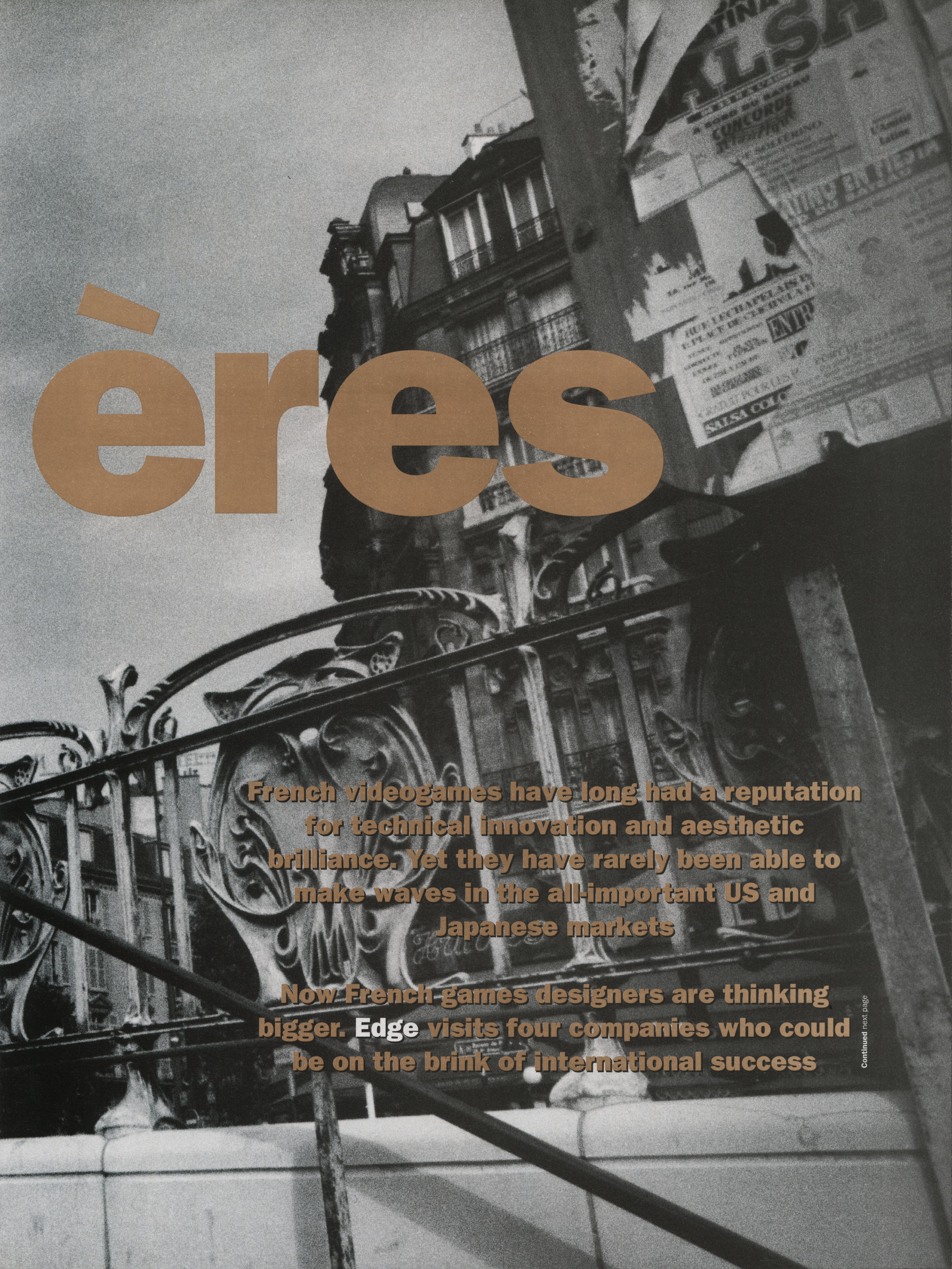
Komisar is more optimistic about the chances of the established hardware manufacturers: 'Nintendo have got $3 billion cash sitting in the bank, so they've got a considerable amount of money to pump into marketing the Ultra 64. The question is, can they bring SGI down to consumer price and accessibility?

'Sega are a very strong company. There appears to be some confusion between Saturn and 32X, but that's something they can probably sort out. Sega are an important player.'

Atari, on the other hand, get short shrift: 'Are they for real?'

For the time being, Komisar is happy to continue to focus on PC CD-ROM: 'Hopefully, it will see us through the chaos of the next few years.' Whatever formats they find themselves working on, LucasArts' success is likely to continue. They company are committed to new forms of gameplay, and they're not exactly short of creative and technical talent.


METRO
Jeux sans
fronti



ères

French videogames have long had a reputation for technical innovation and aesthetic brilliance. Yet they have rarely been able to make waves in the all-important US and Japanese markets

Now French games designers are thinking bigger. **Edge** visits four companies who could be on the brink of international success

Continued next page

Amazing Studio

The creators of *Flashback and Another World* are preparing to go global



Amazing Studio's Patrick Daher, Stéphane Hamache, Eric Chahi, Chris Delaporte, Christian Robert, Jérome Combe, Daniel Morais and Frédéric Savoir (top, left to right). Eric Chahi and Frédéric Savoir in their natural environment (above). Amazing's Paris HQ (centre). Artist Christian Robert (right). Amazing Studio can also count on the talents of Fabrice Visserot, Jean Frechina and Pascal de France (not pictured)

The accepted wisdom in the videogames industry is that French games don't travel. Although French creativity is universally acknowledged, strange scenarios, unusual graphics techniques and generally odd concepts have done little to convince marketing departments outside Europe that France has something viable to offer. In short, French games have often been too clever for their own good.

Eric Chahi, co-founder with **Frédéric Savoir** of Paris-based Amazing Studio, believes that this is due to the peculiar nature of the French games industry. 'In France there is more interest in the individual artists and authors,' he suggests. 'I think games tend to be more imaginative because artists and programmers aren't answering to a marketing department who are targeting a certain sector of a market. Frédéric Savoir agrees: 'On the whole, there's more artistic licence and expression in the games industry over here.'

Frédéric and Eric are determined to break the mould with Amazing Studio's first game, *Heart Of Darkness*. 'We didn't want to do a French game. We wanted to do an international game,' claims Frédéric.

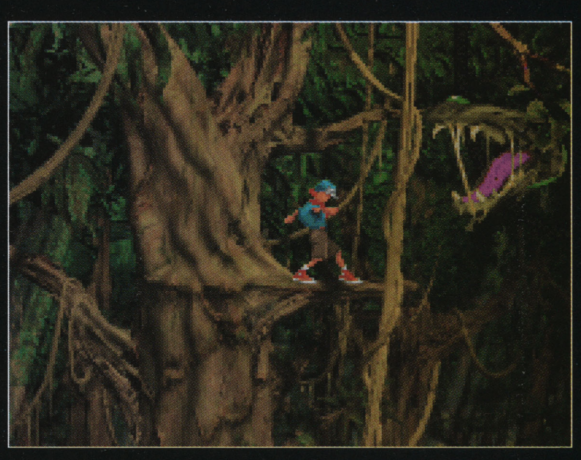
And Amazing Studio have a better chance of success than many. Most of the team have already tasted international acclaim, having worked on two groundbreaking French games for neighbouring Parisian outfit Delphine Software. Before leaving Delphine to set up Amazing Studio in early 1992, Frédéric, together with other members of his team, was responsible for the widely applauded *Flashback* for the Mega Drive, while Eric was sole designer and programmer of the landmark Amiga game *Another World*.

It's probably no exaggeration to say that these two games established France's place on the videogames map. Their combination of sophisticated animation technology and original scenarios set the standard for French game design to match.

Amazing Studio are guarding their first project with the kind of secrecy one would normally associate with a Japanese developer. Such is the incestuous nature of the French games community that rival developers have been extremely curious to find out exactly what direction they have taken in the two years since leaving Delphine.

'In France there is more interest in the individual artists and programmers. I think games tend to be more imaginative'

Heart Of Darkness, which is benefiting from ambitious production values, is a more internationally oriented game than either *Another World* or *Flashback*.



Superb animation is a major feature of *Heart Of Darkness*, Amazing Studio's beautifully realised arcade adventure

'We're going for a more American approach to the design of the game,' says Frédéric. 'This is one reason why we chose Virgin to publish the game – they have a more international outlook.'

Having already learned to deal with foreign sensibilities with their previous games (*Flashback* needed a scoring system in order to avoid disorientating American Genesis players brought up on a staple diet of shoot 'em ups),

Continued next page



Andy, the central character in *Heart Of Darkness*, is typical of the stylish French approach to character design. All of the rendered graphics in the game were expertly created using *3D Studio*

French developers



The transition between the ingame graphics and the pre-rendered cut-scene animations in *Heart Of Darkness* is seamless. The combination of both types of animation advances the storyline extremely well

Continued

Amazing have made *Heart Of Darkness* an engaging blend of cartoon-style animation and computer-generated cinematics. Christian Robert, who designed the characters and backgrounds, and Fabrice Visserot, who realised the cinematic sequences, have pulled off a remarkable technical feat, but *Heart Of Darkness* also has all the hallmarks of a superbly playable videogame.

'We've set out to combine the playability of a Japanese game with the animation of a cartoon,' says Frédéric. 'We wanted to have a good storyline, not just create a great action game.'

At its most basic, *Heart Of Darkness* could be described as a highly sophisticated *Another World*. Although the game's central character, Andy, moves in only one plane, the richness of the backgrounds and the level of player interaction mean that it is considerably more advanced than the Amiga classic.

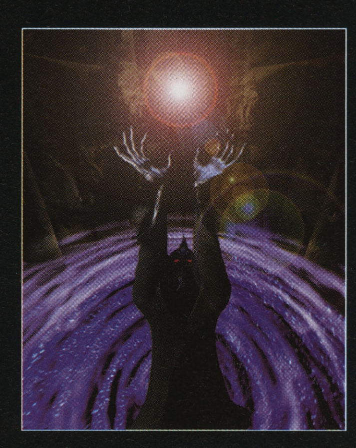
The environments and cut-scenes were all rendered in the ubiquitous *3D Studio*. 'At the beginning it was a big challenge to produce rendered graphics that didn't *look* rendered,' recalls Eric. 'We didn't want that computer graphic look that *3D Studio* usually has. You know the kind of thing – high-tech spaceships, etc. We're using computer graphics to provide a unity between the cinematics and the actual game.'

Despite the prettiness of *Heart Of Darkness*'s backgrounds, it is the ingame animation that will undoubtedly attract most attention, given that this is the department in which the game's forerunners excelled. Unlike *Another World*, which used realtime polygon animation to save disk space (the entire game graphics only took up 64K!), *Heart Of Darkness* relies on traditional computer animation. And while *Flashback* used a total of 1,000 rotoscoped frames (compressed using a special technique), the main character alone in *Heart Of Darkness* takes up 1,500 frames. And that's only in one direction – he's flipped in realtime to generate the other 1,500. Even more impressive is the fact that Amazing have allowed control over the main sprite in every single frame.

As well as being used for the backgrounds, *3D Studio* was the main animation tool. It wasn't intended to be, though: 'Initially we thought that the characters in the cinematic sequences would be done in bitmap form,' explains Eric. 'But after working on *3D Studio* for a good while, we realised that it would be possible to do them that way. Virgin thought we were crazy trying to do it, but we did some tests and they proved successful.'

Both the backgrounds and the character animation in *Heart Of Darkness* have been handled with consummate professionalism – the game contains arguably the best *3D Studio*-rendered visuals ever created. 'We've steered clear of just moving the camera through scenic backdrops,' says Frédéric. 'We think it's important to have good relationships between the characters, just like a good movie or a good cartoon.'

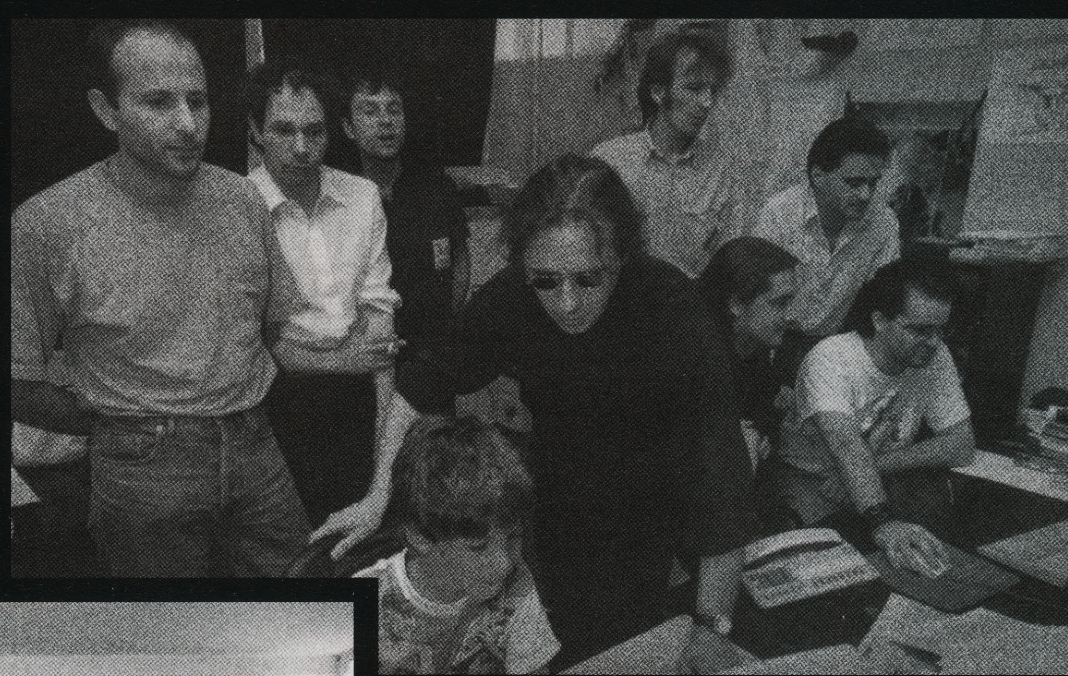
In a replay of the release of *Another World* in 1991 – the secrecy surrounding the game meant that it caused a sensation when it was finally unveiled – Amazing are keeping *Heart Of Darkness* under wraps for the time being. Eschewing the usual course of hawking products around the mainstream games magazines, they will be debuting the game in **Edge** closer to its release date next year.

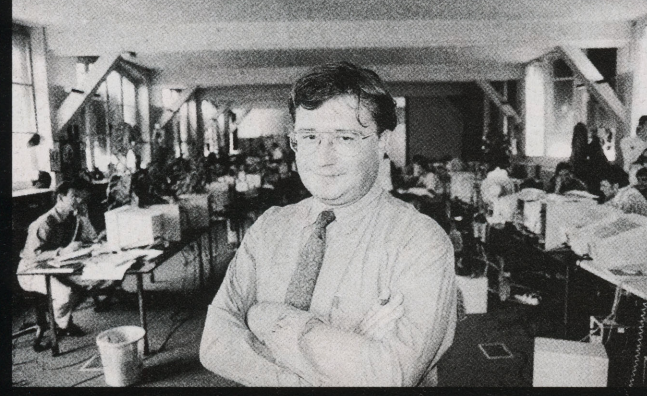


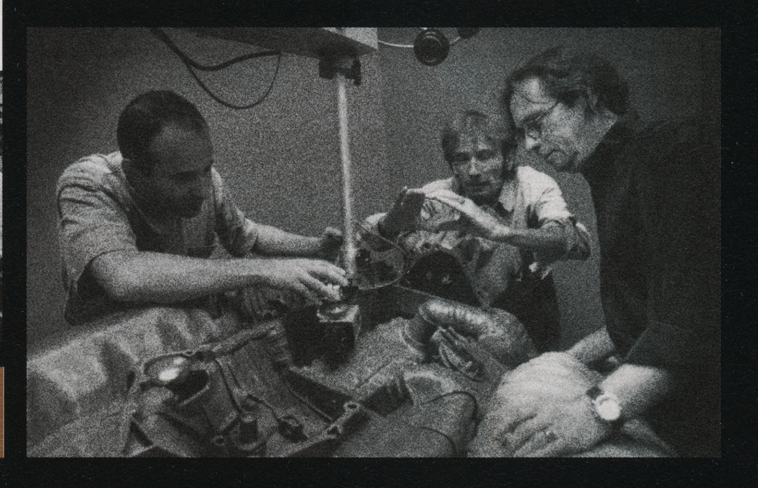
At the centre of the *Heart Of Darkness* story is The Master. Images like this are a testament to Amazing's *3D Studio* skills

Cryo

With a wealth of home-grown experience and talent to draw on, Cryo Interactive are another adventurous band heading for new horizons







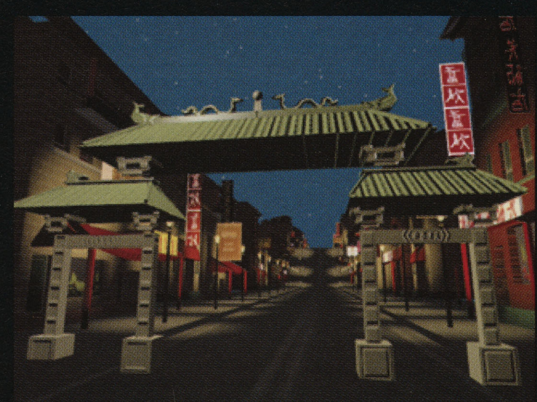
Cryo's Jean-Martial Le Franc (above) has created a versatile company made up of a number of separate teams. The *Commander Blood* team (top) includes Philip Ulrich, Didier Bouchon and Olivia Carado (right)



Revenge (working title), a project for Mindscape, has been in development at Cryo since March this year



Revenge incorporates three different styles of gameplay and includes 500-600 sequences of cinematic animation



A rendered fly-by of San Francisco's Chinatown provides a backdrop for one of the shoot 'em up sections of *Revenge*

Also located in the French capital are Cryo Interactive, a company which is emerging as one of the French games industry's biggest international players. Cryo was founded in January 1992 by **Jean-Martial Le Franc** with the help of two former Infogrames staffers, **Philip Ulrich** (*Captain Blood*) and **Remi Herbellot** (*Get Dexter*). At the time, all three were working for the French arm of Virgin Mastertronic, but left when Sega took over the reins.

Cryo's first two games, *Dune* and *KGB*, were both well received outside France, largely because they both contained a strong narrative structure. 'I still think that the most important thing is to establish strong storylines,' declares Jean-Martial. 'Then you've got more chance of appealing to a worldwide audience.'

Cryo Interactive is actually part of a larger company which also incorporates a high-end computer graphics arm called ID3D and a film production division, Compagnie des Images, whose first film, Son Of The Shark, was nominated for the French equivalent of the Oscars earlier this year. The increasing crossover between the three branches (with Cryo providing images for the movie company in exchange for script writing) is something that Cryo games will undoubtedly benefit from.

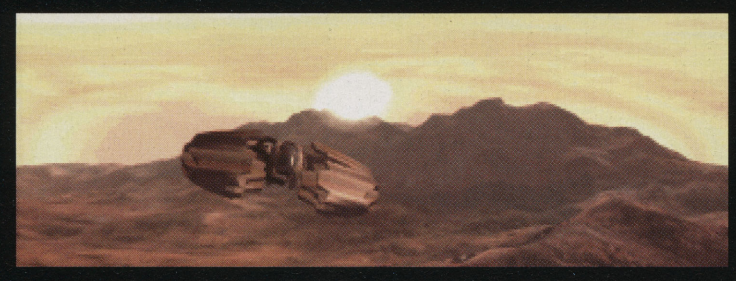
Cryo have done much to change the face of the French videogames industry. Because of their success in attracting investment from the likes of Virgin and Mindscape, they have been able to build up large development teams, thus minimising the damaging effects of poaching of staff that has beset the traditionally incestuous French industry and prevented any one company from attaining world-class status.

Although Cryo are still firmly rooted in the pre-rendered adventure genre with games like *The Lost Eden*, *Dragon Lore* and the forthcoming *Alien* and *Revenge*, Jean-Martial predicts that new technology will enable them to branch out in new directions: 'We're exploring realtime polygon animation and realtime texture mapping. 'We have one big project incorporating both of these. I think we'll continue to blend various techniques, though, as in *Commander Blood*.'

Commander Blood, a PC CD-ROM game with pre-rendered graphics, digitised video and a fast 3D polygon engine, promises to be just as bizarre as its predecessor, Philip Ulrich's and Didier Bouchon's highly strange late-'80s space adventure, *Captain Blood*. 'Sometimes you just have to take a risk,' shrugs Jean-Martial. 'It's weird, but it's a weirdness that I think will travel.'



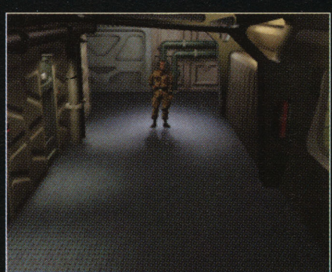
Commander Blood **is Cryo's follow-up to the unusual Amiga adventure,** ***Captain Blood*****, which attracted a cult following. The original was created by Philip Ulrich and Didier Bouchon before they joined Cryo**





The ***3D Studio*****-rendered images in** ***Commander Blood*** **(top) are complemented by digitised video, shot using models constructed in the Cryo offices (above). The character interaction in the game is handled by a versatile scripting program**





Cryo's ***Alien*** **project for Mindscape (above and top) features some superb SVGA rendered graphics**

Adeline

Adeline are a little company who look like hitting the big time with their first project

The Adeline team (top). Frédéric Raynal (above and inset) is handling the *LBA* code; his other half, Yael (right), is designing the backdrops



Humour plays a large part in *LBA*. Rendered scenes like this serve to illustrate the progression of the story



LBA's CD-streamed cut-scenes provide ample opportunity for the Silicon Graphics-rendered characters to show off

When renowned French programmer Frédéric Raynal left Lyon-based Infogrames in early 1993 to set up Adeline Software, he took with him four of his collaborators on the seminal 3D polygon adventure *Alone In The Dark*. The subsequent defection of several more Infogrames staffers took the number of Adeline employees to 12 and established Frédéric's team as a powerful force in the French videogames industry. Adeline's first game, *Little Big Adventure* (see **Edge** 13), which has been in development for 20 months and is due out in November, looks set to be one of this year's most exciting and stylish PC releases.

Ironically, *Little Big Adventure*'s style owes more to the console school of game design than to traditional PC adventure fare. Although polygons are central to the game, the characters, which are all displayed in SVGA and beautifully Gouraud shaded, look distinctly cartoon-like, in contrast to the angular limbs characteristic of *Alone In The Dark*.

According to Frédéric, much of the inspiration for *LBA* came from *Zelda III* on the SNES: 'There's something very magical in *Zelda*. It's a game designed essentially for kids but it also appeals to adults. *Little Big Adventure* is a compromise between the two because we have smooth cartoon-like graphics matched with the variety in gameplay that *Zelda* is famous for.'

The higher resolution of *LBA*'s characters allowed Adeline to improve the quality of the backgrounds too. *AITD* used bitmapped backgrounds because anything more sophisticated would have looked out of place beside the relatively crude polygons; *LBA*, however, features wonderfully rendered scenery, which adds hugely to the game's appeal.



***LBA*'s beautifully smooth polygon animation was created by Didier Chanfray, who was also responsible for *AITD*'s animation**

Although many

developers are still sceptical about the effectiveness of polygon animation, Frédéric is enthusiastic about the technique. 'With polygons, we can achieve in a couple of lines of code what would normally require thousands of sprites to display,' he argues. 'I enjoy using this technology and besides, all of the new platforms are featuring polygons highly, so it makes sense to use polygons.'

LBA's polygon engine is without doubt the most sophisticated ever seen in a PC game. Many of the characters in the game are made up of at least 200 polygons in SVGA mode (which uses over four times the processing power) and the animation runs at speeds of up to 90 frames a second on a DX2.

'With polygons, we can achieve in a couple of lines of code what it would require thousands of sprites to display'



***LBA*'s huge gameworld offers an estimated 100 hours of play. At one point, you have to make use of this friendly winged creature to travel around**

'Initially we had objects drawn in about 20 polygons,' recalls Frédéric, 'and then for some reason the artists started drawing objects using about 200 polygons and it still ran fast enough, so we thought, oh well, let's see what it can do.'

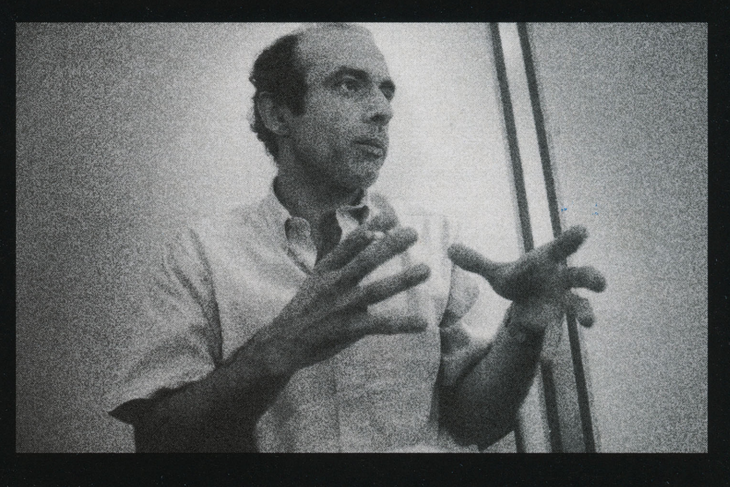
Despite its technical complexity, *Little Big Adventure* is a game that appears to have genuine mainstream appeal – something that *AITD*, with its angular characters, didn't. '*Alone In The Dark* was our first experiment with polygons, and we had no idea what direction it would take us in,' admits Frédéric.' He will be hoping that *LBA* is able to conquer the US market and achieve greater international recognition than *AITD* managed.

Infogrames





The *AITD3* team (above and top) includes seven artists known collectively as Strange Lullabies. The game's producer, Hubert Chadot (right), is enthusiastic about the new techniques to be used in *AITD3*





An improved polygon engine will give *AITD3* extra character detail. More viewpoints will also be included



As in *AITD2*, it's possible to control different characters in *AITD3*. Here, Indian magic has changed you into a cougar

France's biggest games company is exploring new avenues as well as building on past successes

If any French developer can claim to have a significant presence in the world videogames market, it's Infogrames. Based (together with Adeline Software) in the southeastern French city of Lyon, Infogrames are by far France's biggest games company, with 150 staff occupying two-and-a-half floors of a large tower block in the industrial suburb of Villeurbanne.

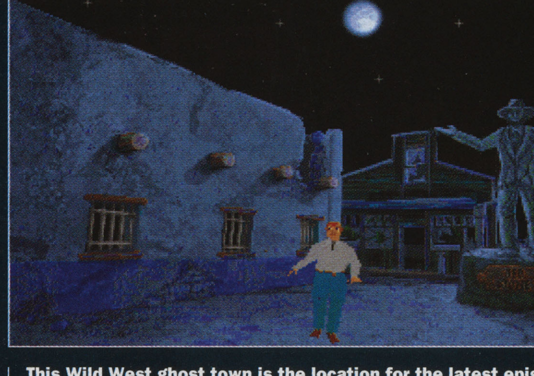
Founded in 1983 by Bruno Bonnel and Christophe Sapet, Infogrames have spent the last ten years building up a colourful catalogue of games for a wide range of platforms. Memorable 16bit titles include *Hostages*, *Alcatraz* and *North And South*, but it was the influential *Alone In The Dark* (created largely under the direction of Frédéric Raynal, who left Infogrames to establish Adeline) that established the company's profile outside their homeland. The first game in the series was released in early 1993 and has since gained cult status.

Infogrames have the technical expertise to compete with the best programmers in the global PC games market

It's easy to pinpoint *AITD*'s appeal. It possesses all the classic characteristics of French game design: a strong story, well-designed characters and, of course, technical innovation. But, like *Another World* (a similarly innovative French adventure), it suffered from a limited lifespan. The second instalment, which arrived in January this year, met with more widespread acclaim. It tackled the principal flaw of the first game by including more backgrounds and locations, but it still didn't please everyone; while many people revelled in the combat-oriented gameplay, others maintained that it was too tough.

With *AITD3*, Infogrames hope to get the balance between puzzlesolving and combat exactly right. With the talents of 25 people behind it, the game's Wild West ghost town scenario is exceptionally well-realised. 'We're trying to make a cocktail of the first and second games,' says project manager **Hubert Chardot**. 'We're trying to keep the atmosphere of the first game and we're making sure that there's not too much fighting. *Alone 2* was too hard for beginners.'

For PC owners with CD-ROM drives who haven't yet sampled the delights of the second game, the company are planning to release a new CD version of *AITD2*, which, as a bonus, will contain a whole new section in which the player gets to control Grace in the grounds of the mansion, as well as a complete digital soundtrack.

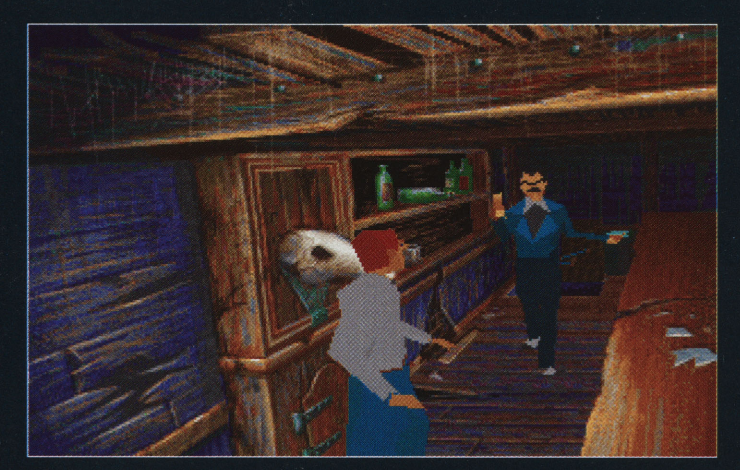


This Wild West ghost town is the location for the latest episode in the *Alone In The Dark* series. Creepy goings-on abound

Infogrames have already refined their development tools for the next game in the *AITD* series. A demonstration of a powerful realtime scrolling engine was enough to convince **Edge** that Infogrames have the technical expertise to compete with the best programmers in the global PC games market. This engine, which is as smooth as *Doom* but offers much more flexibility and detail, opens up new dimensions in *AITD*'s gameplay. '*Alone 3* is the last in the series to use the old system,' reckons Hubert, 'but if we can, we might even manage to squeeze some of the new system into sections of *Alone 3*.'

However, Infogrames are well aware of the dangers of committing all their resources to one style of game. 'I don't think that it is the only way forward for the future,' accepts Hubert. 'It's just one way. Things have to change. Nobody has any fun if things don't change.'

The French videogames industry has matured rapidly since the days of 8bit computers. The prejudice that French games are unsuitable for a global market is rapidly being replaced with a recognition that leading French developers have the technical ability and the artistic talent to become a major force in interactive entertainment.



An early version of *AITD3*'s central character, Edward Carnby, without the costume he will sport in the final game, finds himself in a dodgy situation

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Doom II: Hell On Earth

Format:	PC
Publisher:	Virgin
Developer:	Id Software
Price:	£50
Size:	5 disks
Release:	October 10

Just nine months after *Doom: Evil Unleashed* erupted onto the PC with its explosive mix of gunplay, gore and strategy, id Software have returned to the fray with a follow-up that promises even more refined blasting action. Although id released the first game on a 'try before you buy' basis – the initial episode was available free but subsequent ones had to be paid for – *Doom II: Hell On Earth* has been placed on a more conventional commercial footing, with id obviously assuming that *Doom*'s reputation ensures sales of the sequel.

In the initial stages of *Doom II*, it's hard to avoid the suspicion that you've booted up its predecessor by mistake: the backgrounds are the same, the monsters are familiar, and the gameplay is apparently unchanged. As you get further into the game, though, *Doom II* begins to reveal its unique attraction.

One of the main attractions of *Doom* was its stunning graphics. Not only does *Doom II* clip along faster than any other game on the market, but the variety of the visuals has been dramatically increased. With the benefit of hindsight, you realise how much of *Doom* consisted of monotonous brown walls. Now there's a much greater range of textures, including brickwork, wood panelling, rough-hewn granite and stone slabs.

More importantly, id have made subtle but significant alterations to the gameplay. The shift of emphasis away from utter carnage and towards problem solving that began in the last few levels of *Doom* has been continued in *Doom II*. Switches are scattered liberally throughout the game; the right combinations



The lethal Cyberdaemon boss from the original game makes several appearances in the sequel. Six or seven shots from the BFG are needed to stop him, and your life expectancy at this range is short. This new fiend (inset) only needs a line of sight to turn you into a human candle

Monsters







Doom II boasts six new enemies. The fiend (top left) sets fire to you from a distance. The fat man (top middle) is equipped with twin fireballs. The skeletons (above) throw fireballs which follow you around corners. The spider (top right) posesses plasma weapons. The sergeants (above right) are weak but their guns have a long range. The Cacodaemon (inset) launches flaming skulls and explodes when he dies

have to be activated to open doors and trigger various other events. Even ostensibly simple rooms often require strategic decisions to be made. Although the pleasure of slaughtering your enemies never wears off, it's unquestionably more satisfying to have to think as well as use your reflexes.

It's this depth that makes *Doom II* more satisfying to play than any other game in its genre. *Alien Vs Predator* (see page 78), *Terminator Rampage* and *Monster Manor* all suffer from shallow gameplay that soon becomes tiresome. In *Doom II*, however, there's always something to be achieved, whether it's finding a keycard to allow you access to a new section of the level, getting hold of a health top-up or a more powerful weapon, or just figuring out a way of dispatching that particularly bothersome monster before he kills you (again).

But although *Doom II* does require a fair degree of logical thought, the strategy involved is never so tortuous that it detracts from the game's playability. Even if the same level has been testing your capabilities for an hour, you know that the solution to your problems lies in front of you, and it's just a question of working it out. It's an article of faith in *Doom II* that it's always you at fault, not the game.

As you explore *Doom II*, it becomes apparent how much more complex the level architecture is compared to the first game. The corridors and rooms are as labyrinthine as ever, but numerous lifts, flights of steps and darkened pits give the game a much greater vertical dimension. In the open-air stages, for example, you find yourself battling through castles several storeys high – as well as roaming around at ground level, avoiding gunfire from snipers taking potshots from vantage points high above you.

Doom II also boasts a huge number of secret areas. Some are relatively obvious, while others take a while to figure out. The further you get into the game, the more cunningly hidden they are, but they're never so obscure that you give up looking. And they're rewarding when you find them: one of the best-concealed consists of two Nazi-ridden levels of id's *Wolfenstein 3D*, the precursor to *Doom*.

Id have deliberately increased the challenge in *Doom II* (if you can't take the heat, they

Multiplayer

Leaping out behind your best friend and turning them into dead meat with a well-aimed shotgun blast is what multiplayer gaming is all about. In recognition of the network game's contribution to *Doom*'s success, *Id* have enhanced both the death-match and co-operative modes in *Doom II*. From the DOS prompt, monsters can be turned off, sped up by three times or made to respawn every eight seconds. Your own speed can be increased by up to 250%, although other players are informed if you take advantage of this option. For the seriously vain (or bloodthirsty), matches can be recorded and played back at a later date. However, if you haven't got access to an IPX network you'll just have to dream.

Continued next page



As in the first game, your enemies fight each other in Doom II, which makes your life slightly easier

Continued

Gore



Doom II is not for the faint-hearted: scenes like these make it one of the goriest games on the PC, but also one of the most atmospheric



Cloven-hooved daemons melt after you ignite a room full of barrels (top). A splintered skull signifies the end of this fat man (above)

rather unsympathetically recommend that you put in some practice on the first game). Even on the lowest of the five difficulty levels there are numerous enemies to contend with, and on the hardest one (apart from the unplayable 'Nightmare' level) the hordes of rampaging foes make for a frantic blast. The monsters are generally faster and more intelligent than they were in the original game, and it's now only the lowliest humans who blunder round corners into your ambushes. id have made one concession to frailer gamers, though: whereas the three sections that constituted *Doom* were completely separate, which meant that you had to start each one with the rather ineffectual default weapon, the 30 levels in *Doom II* are continuous, so you can build up your arsenal with impunity.

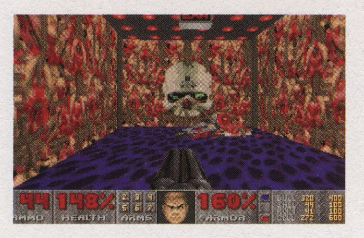
At a time when the minimum machine specification for PC games is rising faster than the price of high-end machines is falling, it's refreshing to see that *Doom II* runs acceptably on a relatively lowly 486 – although there is noticeable slowdown on some of the more highly populated levels later on in the game, even on a 66MHz DX2 system.

The music, week and beepy in *Doom*, remains uninspiring in the sequel, but the sound effects are consistently excellent. Play the game on an Ultrasound-equipped machine, turn the music off and the sound effects up to full volume, and you're in for a treat.

Doom II's biggest drawback is its price. £50 is a lot to pay for any PC game, but it seems positively extortionate when you consider that thousands of excellent extra levels can be obtained free from various bulletin boards (id's authoring software is available to any amateur level designer) and all you're really paying for is the game engine.

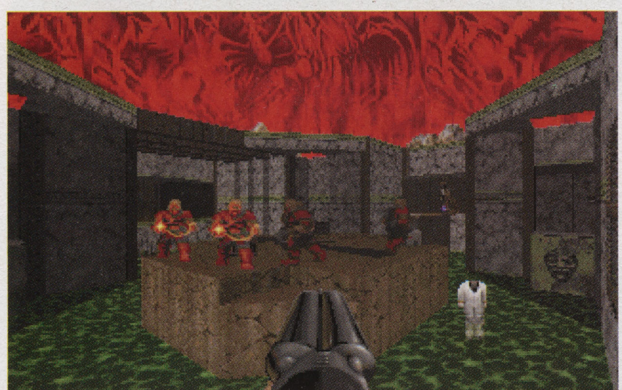
But that shouldn't be allowed to detract from *Doom II*'s achievement. Id have managed to improve what was already arguably the most playable game on the PC, and in the process have set new standards to which other PC games will aspire.

Edge rating: **Nine** out of **ten**



Leaving this room alive requires both skill and strategy (top). This skull marks the level exit (above)









From top: a hefty weapon like the plasma gun is vital to deal with many of *Doom*'s new denizens; complex rooms are the rule in *Doom II*; the backgrounds in the Hell levels are particularly chilling; the enhanced *Wolfenstein* levels are difficult to find, but handy power-ups – as well as a few surprises – await the worthy

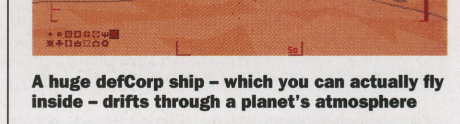
Inferno

Format: PC CD-ROM (disk version pending)
Publisher: Ocean
Developer: DID
Price: £50
Size: 1 CD
Release: October

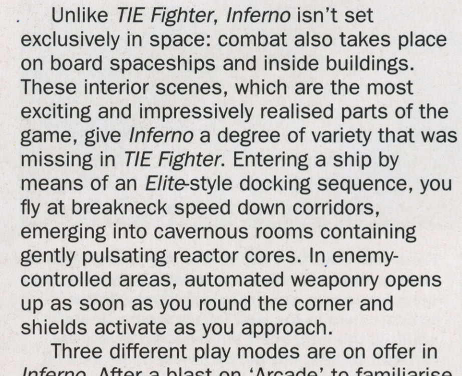


Graphics like these are a major part of *Inferno's attraction* and give it the edge over *TIE Fighter*

For years, the space shoot 'em up has been monopolised by LucasArts and Origin. Games like the cinematic (but crude) *Wing Commander* series, the highly regarded *X-Wing*, and its recent (albeit derivative) sequel, *TIE Fighter*, have become the definitive examples of their genre. Now young guns DID are attempting to dislodge the old guard from their dominant position with their own shoot 'em up, *Inferno*.

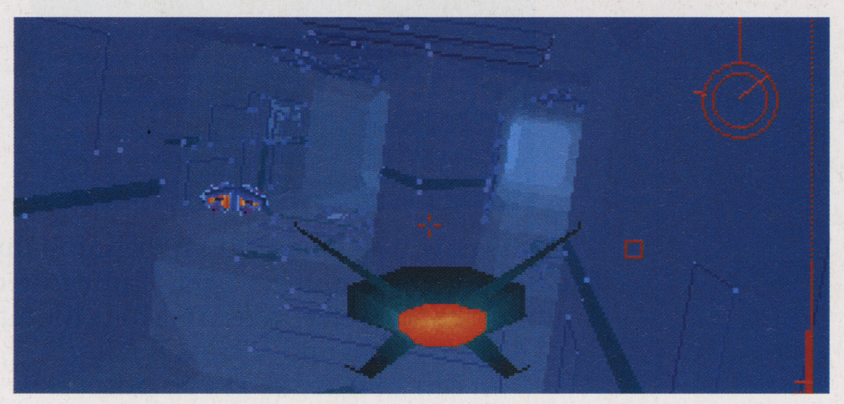


A huge defCorp ship – which you can actually fly inside – drifts through a planet's atmosphere



Unlike *TIE Fighter*, *Inferno* isn't set exclusively in space: combat also takes place on board spaceships and inside buildings. These interior scenes, which are the most exciting and impressively realised parts of the game, give *Inferno* a degree of variety that was missing in *TIE Fighter*. Entering a ship by means of an *Elite*-style docking sequence, you fly at breakneck speed down corridors, emerging into cavernous rooms containing gently pulsating reactor cores. In enemy-controlled areas, automated weaponry opens up as soon as you round the corner and shields activate as you approach.

Three different play modes are on offer in *Inferno*. After a blast on 'Arcade' to familiarise yourself with the control system, you can move on to 'Director's Cut', which allows you limited self-determination within a structured scenario – the strategy adopted by the enemy is directly affected by the way you play, which



The most spectacular missions occur inside bases and ships where the surrounding walls are resplendent with detail. Here, you pursue a Rexxon ship through one of your satellites

Cut-scenes







These pre-rendered sequences may not be to everyone's taste, but they make an essential contribution to the plot. Clockwise from top left: a fallen hero; your arch-enemy, the Rexxon leader; setting out for battle; returning victorious from the fray; your emperor briefs you on the latest situation

means that no two games are exactly the same. 'Evolutionary' takes the gameplay a stage further, giving you greater freedom of action and more influence over events.

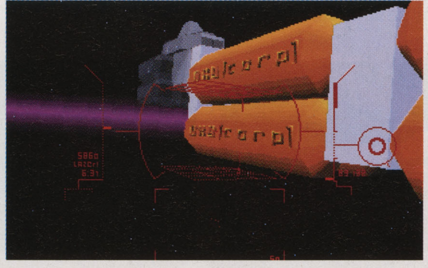
The plot of *Inferno* is prefaced by a 24-page graphic novel, packaged with the game. Illustrated by Sean Phillips of Judge Dredd fame, it tells of an alien breed, the Rexxons, who have launched a bid to crush the Federation. The Federation's most distinguished fighter (played by you) is dispatched to investigate an attack on a civilian cargo vessel. It transpires that he's been lured into a Rexxon trap, which results in his being captured by the invaders and imprisoned in their flagship. After being subjected to a series of fiendish biochemical experiments, he manages to escape. During his rehabilitation it becomes apparent that the alien chemicals still coursing through his veins have given him the power to teleport (but initially only three times per game). Piloting his new Inferno craft, he returns to the fray as a crucial component of the Federation's defence strategy. Throughout the game, the progression of the plot is illustrated by further onscreen comic-book sequences.

DID have succeeded in creating a coherent fictional setting for the conflict between the Federation and the Rexxons. The theatre of

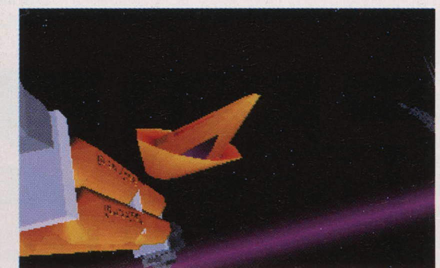
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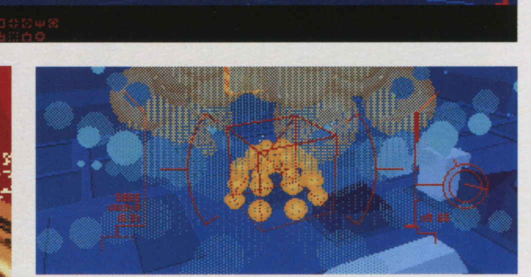
The wealth of data at your disposal isn't necessary for targeting larger ships



Ships' surface details, such as company logos, gradually become visible as you approach



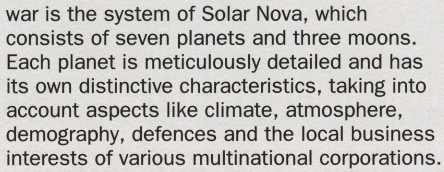
Having established that this is a civilian vessel, you can continue your search for the enemy



The Omnicam shows the scale of the internal locations (top). A cargo bay is destroyed (above)

In enemy-controlled installations, you have to keep a constant watch on your shield strength. Strafing the Rexxons off these platforms is particularly gratifying (above)

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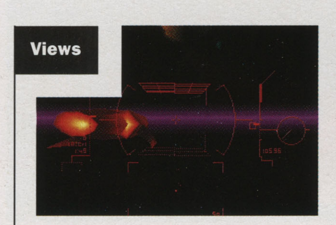
war is the system of Solar Nova, which consists of seven planets and three moons. Each planet is meticulously detailed and has its own distinctive characteristics, taking into account aspects like climate, atmosphere, demography, defences and the local business interests of various multinational corporations.

With over 700 individual tasks in the game, grouped into several larger missions, and more than 80 skyborne enemies, all with individual intelligence levels and agility ratings, *Inferno* will take even an expert gamesplayer at least 100 hours of intensive play to complete. Death comes with alarming frequency at first, especially as the absence of long-distance identification radar means that you often only notice the presence of enemies when they're already on top of you.

However, your highly manoeuvrable and responsive ship gives you a fighting chance, and even when your shields have been shot away, leaving you completely vulnerable, a timer appears onscreen and gives you a few vital seconds to rearm yourself from an onboard 'combat pod'. It's only when the combat pod is empty that the lack of an ejector seat becomes grimly apparent. Your only consolation then is that when you cease to exist you're honoured with a rather more impressive display of fireworks than the enemy craft's somewhat disappointing valedictory explosions.

Although *Inferno* seems dauntingly complex to the beginner, you soon realise that everything in the game has a purpose. Your craft's head-up display, which initially looks like nothing more than a random collection of numbers, lines, geometric shapes and miscellaneous squiggles, soon resolves itself into a logical array of genuinely relevant and useful information. The eight different weapons at your disposal – three lasers, four torpedoes and the aptly named 'megadeth' – cover all eventualities, although a limited number of each means that tactical decisions have to be made (trigger-happiness is not a trait that's rewarded in *Inferno*). Fortunately, if you happen to exhaust your armoury, combat pods scattered around the play area give you a chance to replenish it. *Inferno* also offers a range of viewpoints which complement the default forward perspective, and you soon work out their respective advantages and disadvantages. The full-instrument option, for example, isn't particularly suitable for dogfighting because of its relatively narrow field of vision.

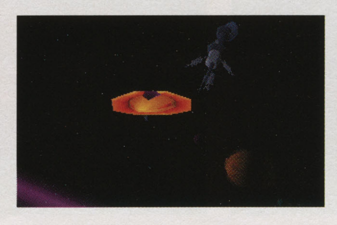
Views



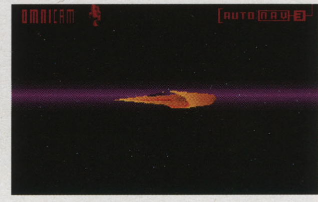
The standard tactical view is generally the most useful



The virtual cockpit looks dramatic but is only for seasoned pilots

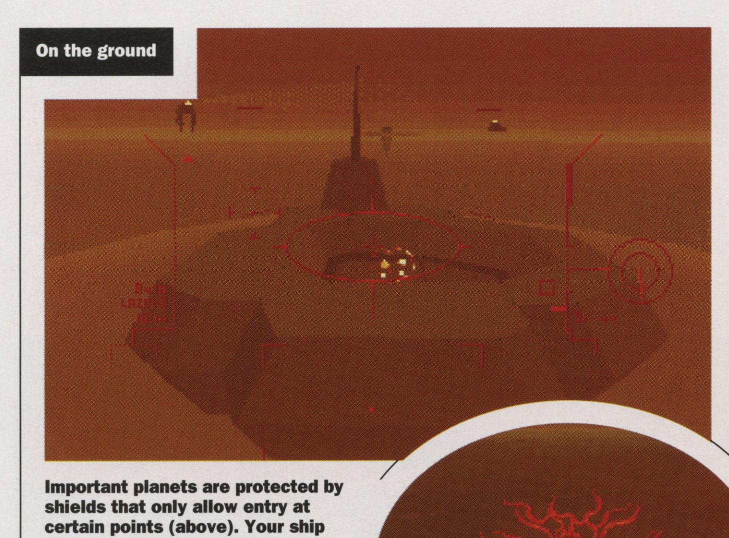


An external camera can be placed anywhere around the ship

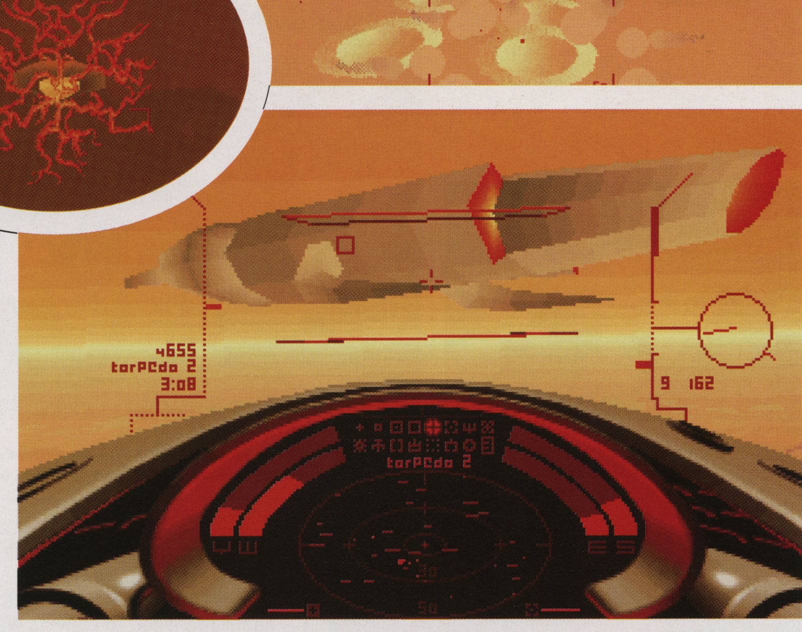


The fly-by view suits even the most critical backseat pilot perfectly

On the ground



Important planets are protected by shields that only allow entry at certain points (above). Your ship collides with a shield (inset)



The remains of an alien lander litter the surface of a planet (top). Collisions and hits from enemy ships cause shield depletion as well as the break-up of your tactical display (above)

Inferno's super-fast 3D engine certainly improves on *TIE Fighter*, although what was technically outstanding when it was first shown over a year ago has now lost a little of its shine, notably due to the lack of texture mapping. However, everything is individually detailed, there's an abundance of Gouraud shading (in space, fully light-sourced meteorites drift past your ship), and the depth cueing is realistic and smoothly graduated.

The quality of the sound matches that of the visuals, with 18 original tunes by Alien Sex Fiend (who seem to be making a career out of game music) and 50,000 lines of digitised speech – most of them used in the exhaustive between-mission briefings. The only letdown is the rather reedy voice of the central character.

The main appeal of *Inferno* is that it offers an acceptable degree of freedom within a believable gameworld. The smooth graphics, and satisfying combat also contribute to its attraction. But despite its comprehensive storyline, *Inferno* will find it difficult to escape accusations that it's little more than a glorified flight sim. It's more satisfying to play than *TIE Fighter* and never becomes tedious, but there isn't enough variety to prevent the onset of déjà vu after a few missions. An extra dimension, like the trading in *Elite*, would have given it greater depth.

Edge rating: **Eight** out of **ten**



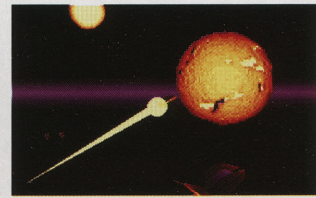
This view is good for orientating yourself during dogfighting



The wide field of vision makes the chase camera a good all-rounder



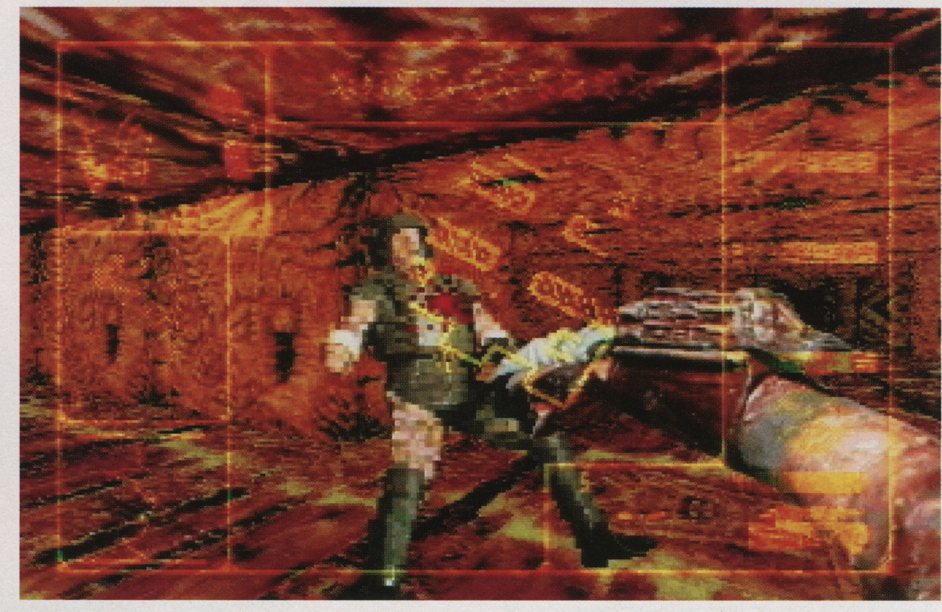
This option enables an enemy target to be tracked through space



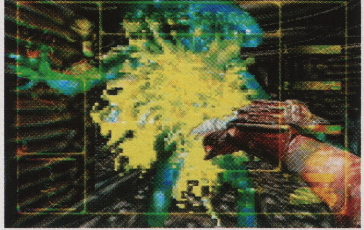
Some of the most dramatic angles are provided by the missile camera

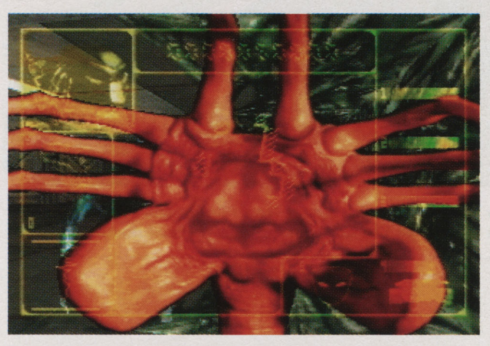
Alien Vs Predator

Format: Jaguar
Publisher: Atari
Developer: Rebellion
Price: £60
Size: 32 Mbits
Release : October



There is action in *Alien Vs Predator*, but it's inconsistent and, unlike *Doom*, lacks variety. Here, a hapless Marine feels the full force of the Predator's powerful arm







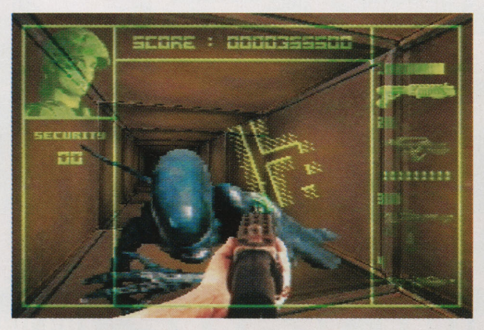
An alien explodes after a swipe from the Predator's arm (top). Waggle the joystick to get rid of this facehugger (middle). If you're playing the Alien, you can use your tail as a weapon (above)

After an agonising wait for Jaguar owners, *Alien Vs Predator* has finally managed to claw its way out of the Rebellion offices and onto the Atari production line. And not before time, too: *AVP* is a crucial component of Atari's sales strategy and the company are counting on the game to boost hardware sales this Christmas.

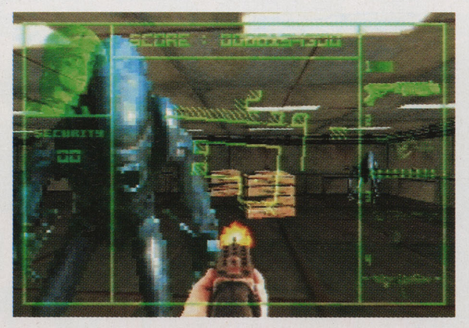
Although *AVP*'s 3D engine was completed some time ago, the game's release was put back by several months so that extra elements could be added to it. Delaying the product so that more meat could be added to its skeleton would have been acceptable if the results had justified the wait. But it seems that all *AVP* has gained in the interim is a few token *Doom*-inspired touches that contribute little to the gameplay.

The first thing you notice about *AVP* is that the front end is incredibly slow – game data takes such an eternity to decompress into the Jag's internal RAM that it almost feels like it's being loaded from CD-ROM. On starting the game, you can choose to play either the Colonial Marine, an Alien or the Predator. If you select the Marine, the task is to find the ship's security pass, set off the self-destruct mechanism and then escape. The Predator's target is to capture the Alien queen, while the Alien's aim is to rescue the queen from the Predator's lair. Each character has different (albeit unremarkable) abilities: the Alien can move fast and attack quickly; the Marine has access to a variety of useful weapons; and the Predator is able to call upon high-tech gadgets like an invisibility filter and a wrist blade.

Unfortunately, in this case the inclusion of three different scenarios and three characters is far from being a recipe for longterm appeal. Basically, there's no real strategy in *Alien Vs Predator*. Whatever character you choose, you end up doing essentially the same thing: wandering aimlessly through corridors in search of enemies to kill. Occasionally you have a brief, violent and ultimately pointless



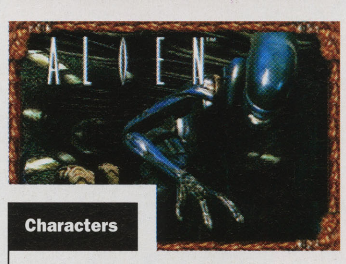
Move backwards, firing constantly, and this Alien explodes in a rather unconvincing manner



Use the map to find your way around. You'll need a motion tracker to locate the Aliens, though







Characters

AVP offers a choice of three characters: a Colonial Marine (top), the Predator (middle) and an Alien. Each has a set mission

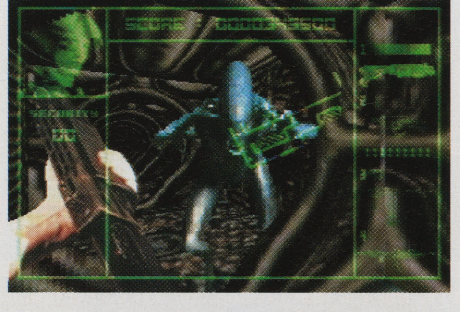
encounter with a lone enemy before continuing on your way, but the truth is that Rebellion haven't been able to make the 'search and destroy' gameplay in *AVP* anywhere near as enjoyable as it is in *Doom*. And to make matters worse, whenever you kill an Alien it disintegrates into a lethal pool of acid that, particularly in narrow corridors, acts as an infuriating obstacle.

One of the things that makes *Doom* so satisfying is its tortuous and cleverly designed levels, complete with switches, stairs, platforms and treacherous trenches full of acid. In contrast, the levels in *AVP* are not only completely flat and relatively devoid of obstacles, but they're remarkable for the complete absence of any puzzles.

AVP is also distinguished by its lack of tension. In *Doom* you never knew what you'd find around the next corner; in *AVP* it's usually nothing. Some atmospheric music would have helped create suspense, but all *AVP* can offer is an irritating engine drone.

Despite some attractive backgrounds and reasonable scrolling, *AVP* has turned out to be a lumbering, lame and unfocused imitation of *Doom* that only the most masochistic gamers will get anything out of. Those people who held on to their Jaguars in the belief that *AVP* would rescue the machine from mediocrity are likely to be sorely disappointed.

Edge rating: **Four** out of **ten**





The textured bitmaps are impressive in some sections (main) but just look garish in others (inset). One of the game's biggest problems is the speed of the action. Before they start firing, these Marines (right) just stand in front of you for for several seconds, waiting to be shot. Your character also takes a while to wind up an attack

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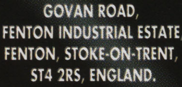
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While some games look increasingly decrepit with age, others simply grow more distinguished. **Edge** honours the videogames family's elders and betters

Bionic Commandos



***Bionic Commandos* presents gamers with a very tough challenge. Even the first level is unforgiving**

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Movement around the *BC* gameworld isn't easy: you have to latch your extendable arm onto trees and ledges and then hoist yourself up. You can also use the arm to swing, Tarzan-like, across gaps, or even to knock out enemies by launching yourself at them feet-first

If one criterion of a classic videogame is that its gameplay is too complex to be appreciated in a casual visit to the arcade, *Bionic Commandos*' status is assured. Its imaginative, deep and, at times, frustrating play mechanics meant that gamers had to invest many hours in it before they saw any results (which is one reason why it was a commercial flop for Capcom).

Although essentially a platform game, *Bionic Commandos* is hardly a typical example of the genre. The main character – the eponymous Bionic Commando – is unable to jump; instead, he possesses an extendable arm which he uses to latch onto overhead platforms, grab power-ups and daze enemies. The versatility of this arm transformed what would have been an average platformer into one of the most original coin-ops of the '80s.



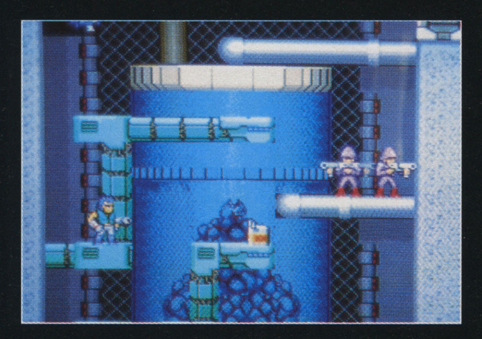
In a later level, a mechanical walker tries to bomb our intrepid infiltrator into submission

Bionic Commandos has five varied and challenging levels. A range of valid routes through each one led to heated arguments among players about whose technique was best. However, everyone agreed about the game's frustrating features, like enemies launching themselves from the top of the screen and landing on a powerless player.

Although *Bionic Commandos* failed in the arcades and suffered a series of lacklustre computer conversions (bar a decent C64 version with some superb tunes by Tim Follin), it's an example of vintage Capcom game design that deserves a place in every Supergun owner's collection.

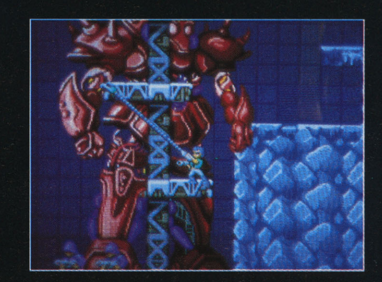
*This month's Retroview was supplied by **Simon Cann**.*

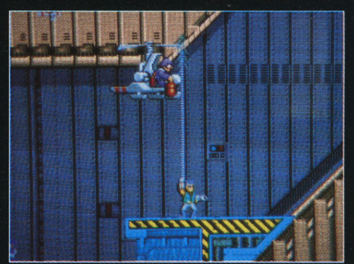




Two enemy guards lie in wait for Bionic as he ponders his next move, while a third foe attempts to blast him with his cannon

Format:	PCB
Manufacturer:	Capcom
Developer:	In-house
Players:	1
Price:	£40–70
Released:	1987
Supplied by:	Raven Games 081-663 6822

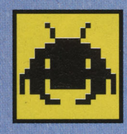


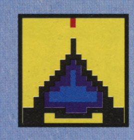


These huge robots (top) can catch out even the best players. The enemy take to the skies (above) to thwart your mission

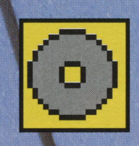
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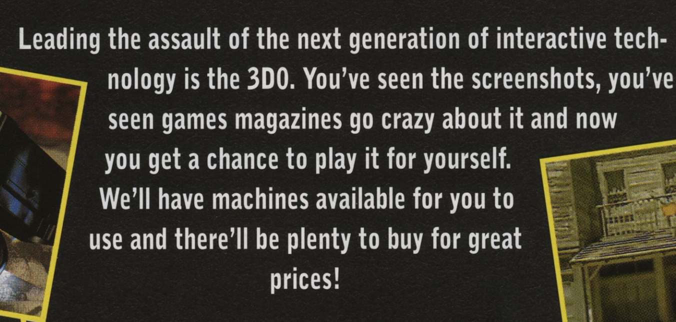


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That's right. This year's FES will feature the World premiere of possibly the most eagerly awaited piece of new gaming technology for years. Nintendo's all-powerful Ultra 64 will be at the show in arcade-format. And you'll actually be able to play it!

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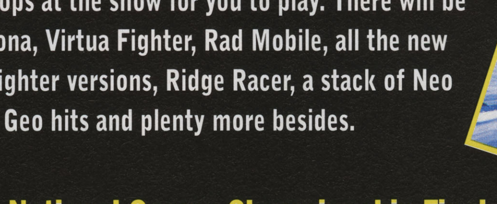
Philips will be unveiling their new CD-i machine and a radical line of new thrilling programs - come along and judge for yourself!





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As well as all this great stuff, there'll be a host of top-of-the-range coin-ops at the show for you to play. There will be Daytona, Virtua Fighter, Rad Mobile, all the new Streetfighter versions, Ridge Racer, a stack of Neo Geo hits and plenty more besides.



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2. Starwing *Nintendo*
3. Super Mario Kart *Nintendo*
4. Jurassic Park *Ocean*
5. Mario All-Stars *Nintendo*
6. World Cup USA '94 *US Gold*
7. NBA Jam *Acclaim*
8. Cool Spot *Virgin*
9. Sim City *Nintendo*
10. The Chaos Engine *Microprose/ Mindscape*

PC

1. **TIE Fighter** ***Virgin***
2. Theme Park *Electronic Arts*
3. Sim City 2000 *Maxis/Mindscape*
4. Striker *Rage Software*
5. X-Wing *US Gold*
6. Sensible Soccer '92/'93 *Renegade/Mindscape*
7. IndyCar Racing *Virgin*
8. Premier Manager 2 *Gremlin Graphics*
9. Cannon Fodder *Virgin*
10. The Settlers *Blue Byte*

US: all formats

1. **Super Street Fighter II** ***Capcom (SNES)***
2. Super Street Fighter II *Capcom (Genesis)*
3. Gargoyle's Quest 2 *Capcom (NES)*
4. Little Nemo *Capcom (NES)*
5. FIFA International Soccer *Electronic Arts (SNES)*
6. Mega Man 5 *Capcom (NES)*
7. NBA Jam *Acclaim (SNES)*
8. World Series Baseball *Sega (Genesis)*
9. Rebel Assault *JVC (Genesis)*
10. Stunt Race FX *Nintendo (SNES)*

Amiga CD32

1. **Liberation** ***Mindscape***
2. Gunship *Microprose*
3. Heimdall 2 *Core Design*
4. Zool *Gremlin Graphics*
5. Fireforce *ICE Ltd*
6. Impossible Mission *Microprose*
7. Morph *Millennium*
8. Sensible Soccer '92/'93 *Renegade/Mindscape*
9. Ultimate Body Blows *Team 17*
10. Global Effect *Millennium*

Mega CD

1. **FIFA International Soccer** ***Electronic Arts***
2. Pete Sampras Tennis *Code Masters*
3. PGA European Tour *Electronic Arts*
4. Sonic The Hedgehog 3 *Sega*
5. Fantastic Adventures Of Dizzy *Code Masters*
6. The Chaos Engine *Microprose/Renegade*
7. World Cup USA '94 *US Gold*
8. Virtua Racing Sega
9. Street Fighter II Champ. Edition *Sega*
10. Robocop Vs Terminator *Virgin*

PC CD-ROM

1. **Theme Park** ***Electronic Arts***
2. TFX *Ocean*
3. Rebel Assault *US Gold*
4. Encarta *Microsoft*
5. Day Of The Tentacle *US Gold*
6. The 7th Guest/Dune *Telstar Fun & Games*
7. Cyber Race *Cyber Dreams*
8. Sam And Max Hit The Road *US Gold*
9. Myst *Electronic Arts*
10. Microsoft Art Gallery *Microsoft*

CD-i

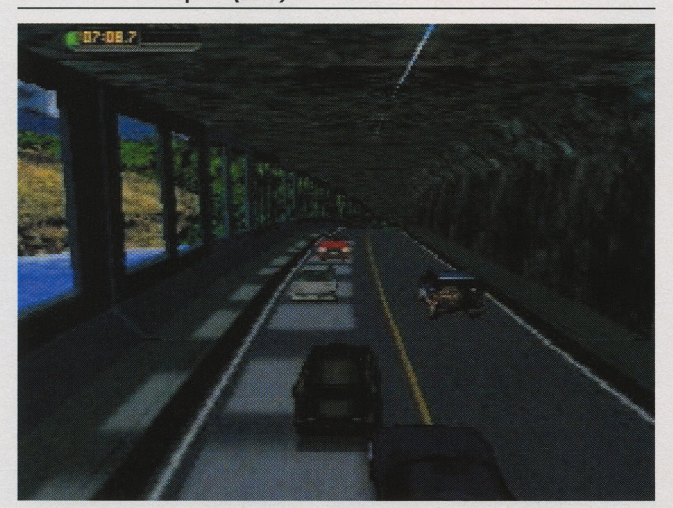
1. **The 7th Guest** ***Philips***
2. Striker Pro *Philips*
3. Caesar's World Of Boxing *Philips*
4. Hotel Mario *Philips*
5. Dragon's Lair *Philips*
6. Voyeur *Philips*
7. Kether *Philips*
8. Caesar's World Of Gambling *Philips*
9. Defender Of The Crown *Philips*
10. Palm Springs Open *Philips*

UK charts courtesy of Gallup

Edge readers' most wanted

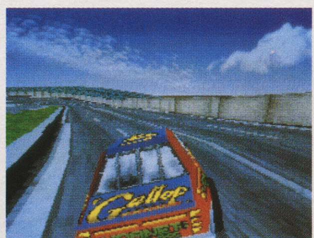
Which item of videogames hardware or software – real or vaporous – would you most like to get your hands on? Write to Edge Most Wanted, Edge, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW, and confess your greatest desires

1 The Need For Speed *(3DO)*



EA's promising textured racer swerves adroitly around the competition and powerslides its way to the top of the most wanted chart. Let's hope the finished game lives up to your expectations

2 Daytona USA *(Saturn)*



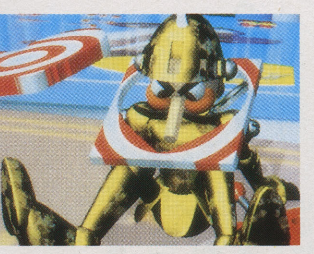
***Daytona* is still whipping up excitement. Arcade-perfect? Some people may be disappointed**

3 Labyrinth *(PlayStation)*



***Labyrinth* looks set to become Sony's *Doom*, with gorgeous texture mapping and animation**

4 Clockwork Knight *(Saturn)*



Flagship Saturn game *Clockwork Knight* uses polygons to take the platform genre a stage further

5 Poly Poly Circus GP *(PlayStation)*



Although fairly plain compared to *Daytona* et al, Sony's polygon racer is sure to set hearts racing

Arcade: dedicated

1 **Daytona USA**
Sega

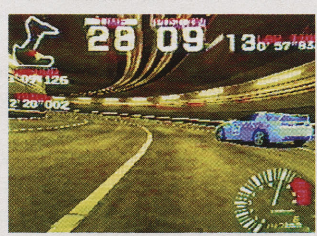
2 Ridge Racer
Namco

3 Final Lap R
Namco

4 Lethal Enforcers II
Konami

5 Virtua Racing
Sega







***Daytona* is still burning up the opposition (top), while Namco's *Ridge Racer* (middle) manages to hold off stablemate *Final Lap R* (above) for the second month**

Japan: all formats

1 **Zero 4 Champ RR**
Media Rings Corporation (SFC)

2 Super Street Fighter II
Capcom (SFC)

3 All-Star Dream Slam
Human (SFC)

4 Final Fantasy IV
Square Soft (SFC)

5 Super Space Invaders
Taito (SFC)

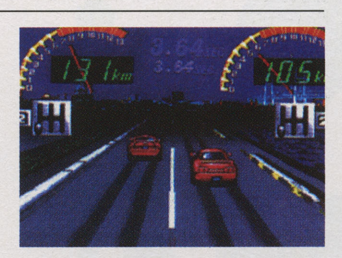
6 Super Puyo Puyo (SFC)
Banpresto *(SFC)*

7 Fire Emblem *Nintendo (SFC)*

8 Stunt Race FX *Nintendo (SFC)*

9. J League: Excite Stage '94
Epoch (SFC)

10. Derby Stallion 2 *Ascii (SFC)*







***Zero 4 Champ RR* comes from nowhere to head the field (top). *Super SFII* (middle) holds on to second place, with *All-Star Dream Slam* completing the trio**

The **response** has been **excellent** with an excellent calibre of candidate

Marilyn Lawrence, **Answers Recruitment Ltd**

EDGE moves...

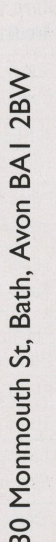
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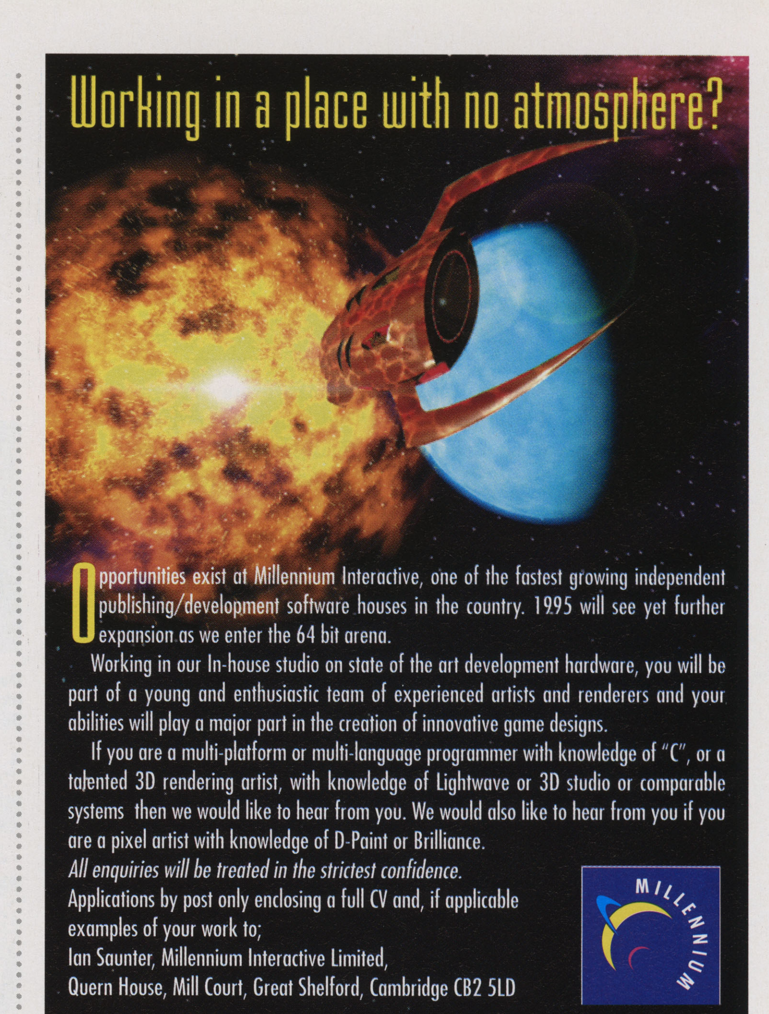
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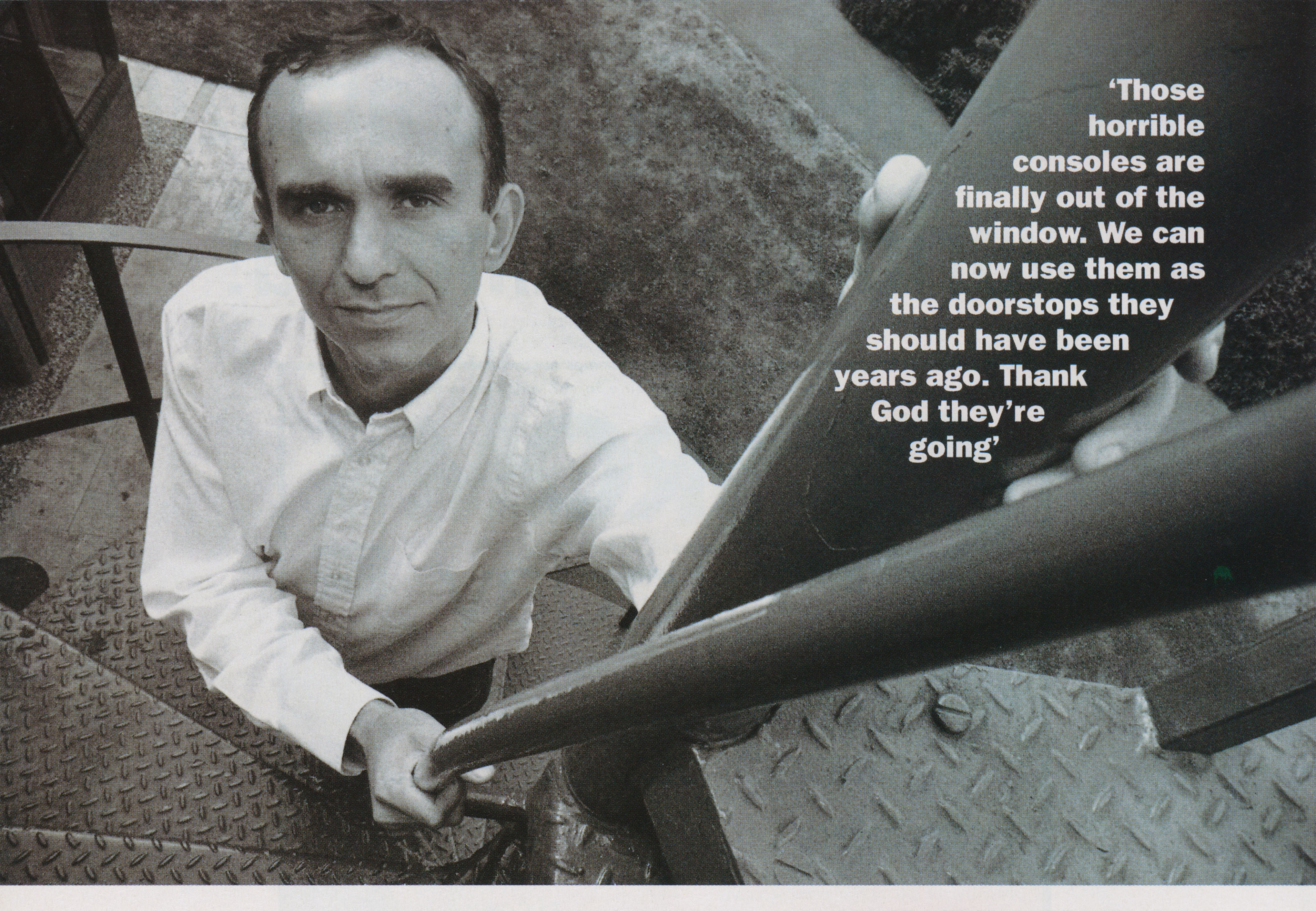
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'Those horrible consoles are finally out of the window. We can now use them as the doorstops they should have been years ago. Thank God they're going'

An **audience** with Peter Molyneux

Peter Molyneux's Bullfrog are one of the videogames industry's greatest success stories. **Edge** wants to know what happens next

Peter Molyneux has come a long way in the last seven years. During that time, the company he founded, Bullfrog, has outgrown its humble beginnings – it initially operated out of his flat – to become a fully fledged business with 100 employees and plush offices in a Guildford science park.

The catalyst for Bullfrog's success was a trio of isometric strategy games: *Populous* (the first 'god' game), *Powermonger* and *Syndicate*, all three of which enthralled gamers with their depth and complexity. Since then Bulldog have produced the critically lauded *Theme Park* and are now hard at work on their latest creation, *Magic Carpet* for the PC.

In their relatively short history, Bullfrog have barely put a foot wrong, with an enviable catalogue of classic games to their credit. But in the videogames industry, as in Hollywood, you're only as good as your last product. **Edge** questions Peter Molyneux – a man regarded in some quarters as something of a visionary, with an almost instinctive ability to produce playable games – about the changing games market and Bullfrog's place in it.

Edge *Magic Carpet* has been in development for some time now. How is the game progressing?

Peter Molyneux We've been working on it for two years using a new vector routine that we've been developing. The reason we've been using this is that I knew that we couldn't really produce any more of those isometric games. We've done those now. *Theme Park* was the last of that type of game. So we needed something a little bit more up-tempo to persuade people that we were clever. *Magic Carpet* is essentially a polygon-based engine with nice depth-cueing in it. The game itself is similar to what you saw before (see **Edge** 5) but a bit more defined now. The main character is a wizard flying around on a carpet able to cast a whole range of spells and with a base castle that he has to build up.

Edge What do you think about the state of the videogames market at the moment?

Peter The current trend in games like simulations, adventures and some sports sims is that they are getting progressively harder, cleverer and more challenging. But this doesn't necessarily make them better games. The trouble is that a lot of games are getting so hard that only the very best gamers can play them. The first rule of game design is that you mustn't produce games that are too complex for people to play. I'm thinking directly of games like the *Ultima* series, which developed from an accessible thing, around *Ultima III* or *IV*, into a huge monolith-type underworld that was so all-encompassing, so big, that it… well, I was reading in one review that the game starts to get good after four hours. So I think, do I really want to invest four hours in something that may or may not be any good? Being overly complex for the sake of being complex is not a good idea. Complexity is good as long as it doesn't get in the way of the game.

The other point is that there seems to be a huge, huge backlash against virtual reality. No-one's talking about it any more. We're into a new thing called interactive drama. That's our new key word for 1994/95. Everybody's doing interactive drama with interactive plots and interactive characters. But I think that it's going to be a tough, tough thing to do. Hollywood spends millions of pounds on scripts. They have hundreds and hundreds of scriptwriters and they get it right once or twice a year, if that. And little game designers like us are coming along and we're going to write this script which is going to have infinite variations, is going to be as entertaining as any Hollywood film, is going to have cinematic sequences in it, and we're going to sell it for four times more than you can buy a video for. There's something wrong there. Either we're very, very clever chaps and Hollywood has been doing it wrong for the last 100 years, or perhaps we're talking out of our arses. I know of companies that are spending five million dollars [*Wing Commander 3*], which is a hell of a lot of money to spend. I'm sure it will be a good product but whether or not it will justify that money is a different matter.

Edge What's your opinion of the current hardware situation?

Peter It's good news. Those horrible consoles are finally out of the window. We can now use them as the doorstops they should have been years and years ago. I've always disliked the SNES and Mega Drive. As a designer I've despised them. Thank God they're going.

Continued next page



Photographs: **Jude Edginton**

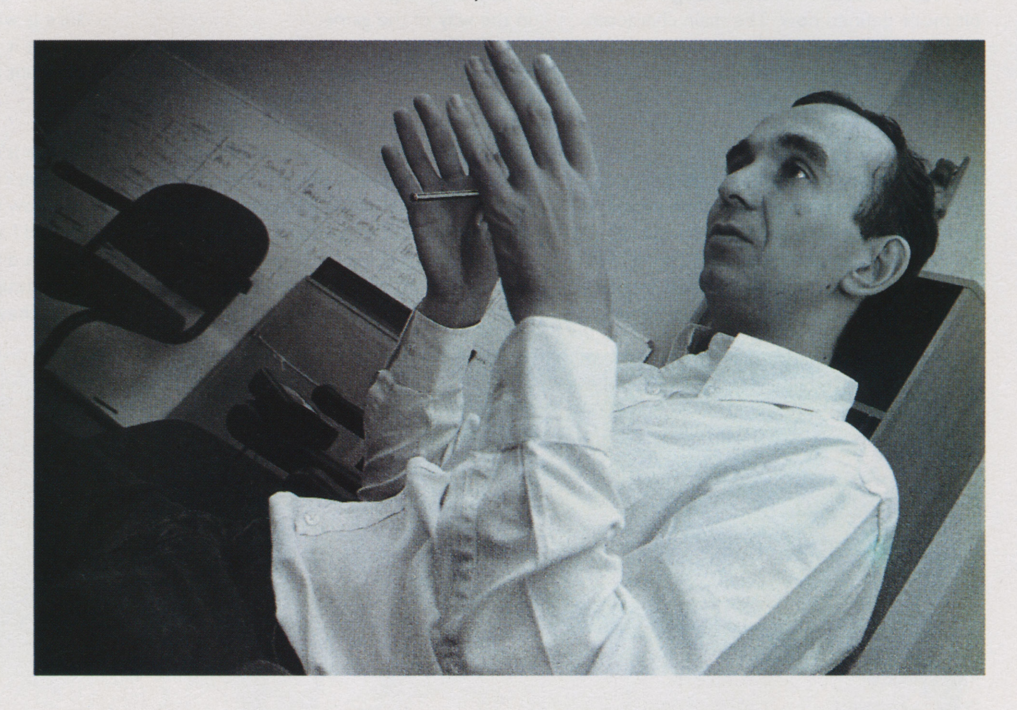
'PCs are too much bother, even with CDs. You've got to configure one of the 30 trillion soundcards' 30 trillion settings. I don't understand all these DMAs and IRQs and all that crap. I just fiddle around until I get it right. Until they sort that out, the machine is going to terrify people'

Edge Does that animosity extend to the next-generation consoles?
Peter At least they're not less powerful than the Amiga was and at least they've got hardware support that lets us do the sort of game we want to do. It gives us more scope. The only bad side of it is that everyone who has heard about the PlayStation and Saturn is expecting a machine that can do just about anything. I mean, they can already see the ultimate game in their mind's eye: photorealistic graphics, bucketfuls of sound, huge amounts of gameplay. The problem is that you've only got just over 2Mb of RAM to fit it all into.

one of the largest electronic producers in the world. The PlayStation has bags of processing power, lots of chips and it works in the same way as *Magic Carpet* so the conversion will be a breeze.
Edge Will the 3DO become a lame duck when the PlayStation is launched?
Peter Well, Trip Hawkins did say that it was 50 times faster than anything else, but what he was referring to was probably the Commodore 64! That's the problem: huge expectations. I couldn't wait to get my hands on one, but when it came along the games were worse than anything on the PC or anything else – hence the phrase '3DOA'. You know what this industry is

good development hardware. It's all there. It's a bit depressing. I wish that 3DO had been more successful. A company run by Trip is a hell of a lot better to deal with than something like Sony.
Edge Why?
Peter It's just that Sony are a huge, multibillion dollar corporation. They've got rules and agreements for the contracts. It's hard to get in touch and you don't mess with them.
Edge What about the PC? Does it have a secure future?
Peter Intel would like to think so. There was some research done by Intel, I believe, which revealed that there were 40 million

'Interactive drama is going to be a tough, tough thing to do. Either we're very, very clever chaps and Hollywood has been doing it wrong for the last 100 years, or we're talking out of our arses'



Edge Which of the new consoles has the best chance of success?
Peter The PlayStation.
Edge So a company like Sony with no videogames history has more chance of pulling it off than established operators like Sega and Nintendo?
Peter I think that when Sony do something they probably do it right. And they've decided to come into the games business and they haven't got all the hang-ups that a lot of the other hardware manufacturers have. They haven't picked up any bad habits. And they haven't got teams of programmers that they have to support who say, 'We want to do *Mario 5*.' They're coming into it from a purely 'This is what we can produce' angle. And it's got an impressive spec. It easily outperforms any machine currently out there. Sony are

like: as soon as there's a scent of death, everyone jumps on the hearse. So now everyone is saying, 'Ah, 3DO's crap.' And then, in your own magazine, Trip says, well, they've beaten us on the current spec, but when we finish 3DO2 people are going to love it. Are you going to buy 3DO when you know that 3DO2 is just round the corner? No, of course not.
Edge So you don't think Bulldog will prove to be the saviour of 3DO?
Peter They haven't even designed it yet. It's so full of ifs and buts. We had one of the first 3DOs in the country and it's been a nightmare to develop for it. The compiler hasn't worked, the hardware hasn't worked, there have been all these hardware glitches, etc. To give Sony their credit, they've actually got a piece of plastic they can put in front of you, they've got

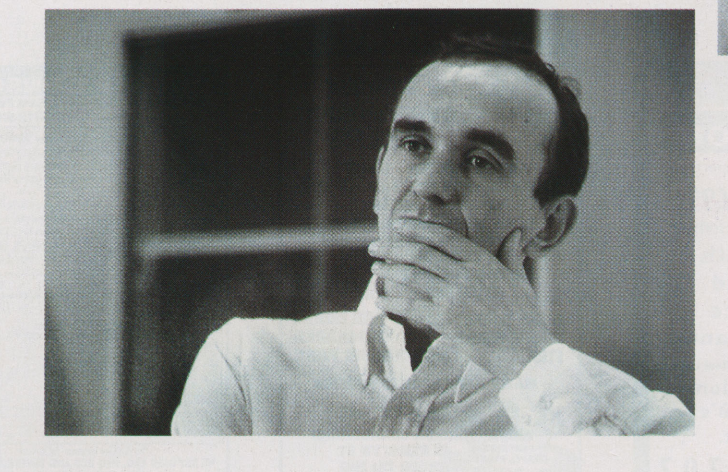
PC sold last year, which is more than the number of cars. That means that there are a lot of PCs around. And the bestselling games shift around 350,000 copies.
Edge Will the PC eventually destroy the console market?
Peter Definitely not. PCs are too much bother, even with CDs. You've got to configure one of the 30 trillion soundcards' 30 trillion settings. I don't understand all these DMAs and IRQs and all that crap. I just fiddle around until I get it right. Until they sort that out, the machine is just going to terrify people.
Edge Do FMV-based games have anything to offer gamesplayers?
Peter We've been approached a lot of times to do film licences. It's always either been that the film is too late (you can't do a game in three months) or the restrictions

placed upon it are too great. McDonalds approached us for a joint game venture, and they specified that absolutely nothing in the game must contain any sharp edges – because apparently the kids can imagine Ronald skewering them or something – and you must use these characters this way and paint them this colour... Basically, they say, 'Do this game this way and don't do it any other way.' And the same applies with Hollywood. Unless you're in at the very start of filming it would be very difficult to construct a worthwhile game around it.

Edge Where is the games market going?

Peter I think that Hollywood will become increasingly interested in it. But beyond that, there are much larger companies who have got no knowledge of the games industry but have billions and billions and billions to spend and are just snapping everything up.

'Everyone who has heard about the PlayStation and Saturn is expecting a machine that can do just about anything. The problem is that you've only got just over 2Mb of RAM to fit it all into'



Edge GTE, for example?

Peter Yes, that's one of them. They're on the snap-up at the moment. In some ways it's great because they've got the money to burn. In other ways it's really depressing because those companies are going to buy out and make some very bad decisions and they're going too lose an awful lot of money. I'll give you an example, but with no names. I know a company of people who sit around producing initial game specs. Now we all know that, perhaps with the exception of a horizontal shoot 'em up, the original specs bear no relationship to the finished product. So they have no experience, no game, but have just been bought out for a lot of money. Absolutely farcical. So what is going to happen is that you'll have all these games coming out with all the Hollywood input, but they'll be complete shite.

Edge Surely you wouldn't describe LucasArts games as 'shite'?

Peter No. They do get it consistently right but if they couldn't get it right, then who else could?

Edge All your games are very dependent on networks and modems. Why is that?

Peter I've always felt, right from *Populous*, that the best games you can play are against someone else. I could work for ten years on a computer opponent and it would be crap compared to playing against a human. In America, networked games are really taking off. The free local calls help, but all the games are terrible on these bulletin boards. We'll be doing a network version of *Magic Carpet*.

Edge Are videogames too violent?

Peter Definitely not. If we banned violence we'd just end up doing what Nintendo do. You should always know that you're killing someone. PC games are played by the same audience who watch '18' films. You'll only drive it underground and it's nothing new anyway. It always has and always will be there. What's the point in banning it when you can buy it in the newsagent? All this fuss about porn and violence is just the media's current fad. You're definitely not going to stop it.

Edge What types of game do you personally prefer to play?

Peter Sims, definitely. You can go into an arcade and spend £5 on the latest games and be bored with them. Only on the PC can you really create something. With games like *Sim City 2000*, *Theme Park* and *Civilization*, it's all up to you. I also like roleplaying games. Both genres provide the best value for money. With honourable exceptions like *Doom*, of course. On a console, something like *Super Mario Kart* or perhaps an EA sports sim.

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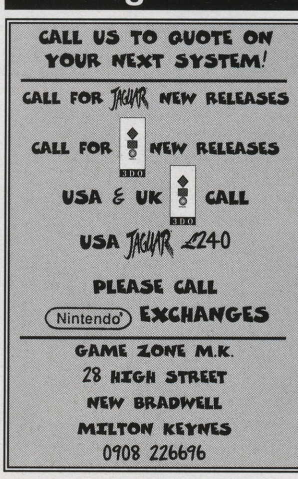
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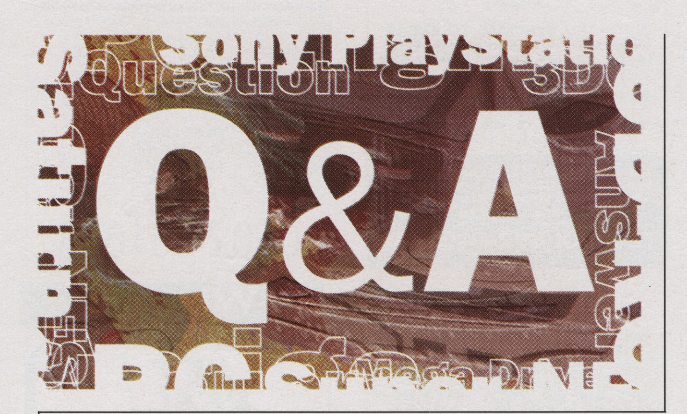
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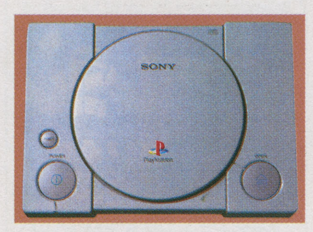
questiontime



Send your **questions** to Q&A, **Edge**, 30 Monmouth Street, Bath, Avon BA1 2BW

Q **1.** What is the difference between MHz and MIPS? As far as I can decipher, if a processor runs at 30MHz then it is capable of roughly 30 MIPS. Am I right in thinking this?
2. I recently heard that a company by the name of Rambus are providing Nintendo with a memory interface for Ultra 64 which runs at 500MHz. Does this mean that, when coupled with the 100MIPS processor, the new console will be capable of 600MHz? This sounds like a phenomenal figure to me and would certainly beat both the PlayStation and 3DO Bulldog in terms of hardware power.
3. In your PlayStation specifications you claim that the machine can handle 1.5 million flat-shaded polygons per second and 500,000 texture-mapped and light-sourced polygons per second. So what does the 360,000 polygons/sec refer to?

Mohammed Imran, London



How many polygons/sec? (See letter from Mohammed Imran)

A **1.** MHz and MIPS are entirely different measurements of processor speed. Hertz, or Hz, is the standard international (SI) unit of frequency. MHz stands for megahertz, or millions of hertz, and in computer terms is used to describe the number of processor cycles per second. MIPS stands for millions of instructions per second – it often takes a CPU a number of cycles to execute a single instruction. With streamlined RISC chips, instructions can often be executed in one cycle, hence the similarity between the numbers.
2. The figure of 500MHz refers to the speed of data transfer from memory, not processor speed. Being able to shunt data to the graphics processor at high speed is obviously desirable for fast 3D, but the speed at which the data is handled by the processor is a different matter. Incidentally, the speed at which the Ultra 64 moves data around the system – its bus bandwidth – is 267Mb/sec.
3. The PlayStation's 3D processor is a matrix operating chip (polygon calculator) which Sony claim can calculate 1.5 million flat-shaded polygons or 500,000 textured polygons/sec. Of course, having the power to draw this many polygons is something else: the graphics processor is reckoned to be able to draw 360,000 polygons/sec. Part of the problem with these figures is that Sony haven't supported them with more information (eg polygon size, number of colours, etc).

Q My television, a Sentra STX600, can display PAL, SECAM, 443 NTSC and 358 NTSC yet only has a PAL-standard aerial input. My video is an Akai NICAM stereo model with Euroconnector and PAL (which I use). Can I get a lead to use the Euro-connector? I believe this would give me better reception. Also, can I do the same with my Mega Drive – indeed, could I connect an import Mega Drive to my TV?

David Murray, Peterborough

A If your television supports NTSC 3.58, then connecting an imported Mega Drive shouldn't be a problem. However, only the older machines support RF. As for connecting the SCART (Euroconnector) on your video to the RF socket on your TV, finding a lead that will do the job could be tricky: SCART leads usually provide an RGB or composite feed.

Q **1.** Please help me in my quest for my first real computer. The system I have in mind is a 486 DX4/2 PC with a double-/triple-speed drive, with maybe a 16bit soundcard. Which would be the best in terms of graphics, sound and overall price? Would buying a DX2 make me need to upgrade earlier? I am aware of another type of 486, namely the 486SX. What is this like? Another magazine told someone in a similar quandary that they would need a 180Mb hard disk, 8Mb of RAM instead of 4Mb, multiple hard disks and at least a 256K cache. What does all this mean?
2. Also, I have heard about the 3DO and Jaguar/Reel Magic cards. Could I fit both in as well as sound and graphics cards? Would I even need to have sound and graphics cards with the 3DO and Jaguar cards? How would you plug in Jaguar carts?
3. Which CD drives and soundcards does **Edge** use?

Kristian Guyte, Old Windsor

A **1.** Advice on which PC to buy could fill an issue of **Edge** by itself. The best recommendation is to decide which chip and clock speed would be adequate and buy the next model up. And remember that it's cheaper and easier to spend an extra £250 at the time of purchase than it is to upgrade from an obsolescent machine after six months.

First the bad choices. Ignore all the DX4-series chips: they don't offer a sufficient speed increase for the extra cost. Also avoid the SX chips: if you're spending £1500+ you want a maths co-processor, and SX machines don't have one.

It's essential to plump for at least 8Mb of RAM. A single hard disk of more than 200Mb with an average access time of under 16milliseconds is also a must. A hard drive with a cache (extra RAM to speed up data transfer) is not necessary, especially if the access time is less than 13 ms. A 15" monitor provides 30% more screen than a 14 " monitor and is a good choice (make sure it can handle true colour and vertical refresh rates of 72Hz). The video card should have at least 1Mb RAM and be VESA compatible. If you can afford it, a PCI-based card with 2MB will make



Buying a new PC is probably even more stressful than moving house or changing job. Edge has some advice (see letter from Kristian Guyte)

everything fly. The soundcard should be 16bit; if you want to use it for games it must emulate Soundblaster. Speakers with a volume control are convenient. A double-speed CD drive with an access time of <300ms and sustained data transfer rate of >300Kb/sec is essential. A triple-speed drive is not necessary. The type of chip depends on your finances: a 486DX2/66 is fast enough to cope with most games, but if you have the extra few pounds, buy a Pentium. Gateway 2000 provide a range of PCs with great specs, but they tend to be expensive.
2. The Jaguar and 3DO Reel Magic cards will probably be full-length, 16bit affairs. Providing you have two free, full-length slots and a large wad of spare cash after fitting all your other cards, there should be no problem. It's almost certain that the Jag version will be CD only.
3. Edge has a Dan 486 DX-66 PC with a Panasonic CR562B double-speed CD-ROM drive and two soundcards: Soundblaster and Gravis Ultrasound (an excellent card which is gradually attracting more software support). A faster CD-ROM drive would be a luxury, but if **Edge** were to buy one, first choice would probably be the NEC 4Xi.

Q In your reply to Nicholas Witcomb (Q&A, **Edge** 12) you say that Sony intend to encrypt their PlayStation discs, preventing games from one area running on machines from another. Wouldn't this mean that, as the encryption is on disc, an adaptor would be impossible to produce for this console? Although I, like many others, would dearly love to own a PlayStation, surely the CD format means that there would be a lot of Japanese speech in import games, making them much less accessible than they currently are? If so, would it be better to wait for the US launch, so that I can have a 60Hz display and get games in English?

Richard Plumb, Leicester

A It would be optimistic to expect an adaptor to become available that would allow US or UK games to be played on the Japanese machine. The PlayStation does have an expansion port but whether an adaptor is technically possible isn't yet known. For many people the prospect of Japanese text in games is a daunting one, but, as PC Engine owners will testify, it needn't be. Although many imported PlayStation games will be stuffed with Japanese text (particularly RPGs and strategy games), many Japanese releases will still be perfectly playable.



This device – the 3DO's MPEG cart – enables you to play White Book-compatible video CDs on your 3DO (see letter from Alan Nolan)

Q **1.** How will the *Chicago* operating system affect PC owners? In what way will it be beneficial?
2. How do the new 64bit PC video cards compare to the power of the new consoles?
3. What has the new Plug 'n' Play system got to offer?
4. Will Creative Labs' 3DO Blaster PC card offer 100% compatibility with existing 3DO players? Will there be any drawbacks? If a standard 3DO card can be created, is a Bulldog one possible?
5. Is there any truth in the rumour that Commodore are going to release an Amiga PC card based on the AAA chipset?

Rajesh Patel, Cheltenham

A **1.** It should mean that the PC will become much easier to use. *Chicago* is intended to completely replace *DOS* and *Windows* with a new 32bit, multitasking operating system akin to an Amiga's. Memory, always the bane of the PC, will be treated as one block, config.sys and autoexec.bat files will not exist in their current form, and all system resources will be allocated automatically. *Chicago* should be totally stable, even with non-standard apps.
2. They are racing on different courses. Various manufacturers, like Matrox, are building polygon rendering into their current 64bit cards, but no PC card has been developed that offers the kind of power seen on, say, the PlayStation. Not yet, at least.
3. Convenience. *Chicago* will handle all IRQs, DMAs, etc itself, set up the card and eliminate all hardware conflicts.
4. Apart from having to configure the thing, and having to play 3DO games on a PC monitor instead of a huge, sexy television, there shouldn't be any noticeable differences. Compatibility with the Bulldog system (which uses the PowerPC chip – see News) is a grey area; it will become clearer soon.
5. Development of the AAA chipset is rumoured to have been put on hold while Commodore sort out their future. And it's unlikely that a PC card containing the chipset would appear before an AAA-based Amiga.

Q **1.** Do normal movie CDs work on the 3DO, or can you only use ones made especially for it?
2. Do you need an adaptor to play videos on the 3DO?
3. How many portable speakers can you attach to the 3DO?

Alan Nolan, Co Down

A **1.** and **2.** Video CD movies – compatible with the White Book standard agreed by Philips, Sony, Matsushita and JVC – run on the 3DO with the aid of the MPEG decoder cartridge – out soon.
3. The Panasonic machine has a stereo Walkman-style earphone jack on the joypad and twin RCA phono jacks on the back of the machine. It depends on how you connect the speakers.

Q I am starting university in October to do electronic engineering and microelectronics. What I would like to do when I graduate is work for one of the big companies – Sega, Nintendo, Sony, etc – in the field of hardware design.

The problem is, would they want someone like me or do they train their own personnel? How would I go about finding this out and what are my chances of being successful in finding a job with them?

J Bell, Argyll

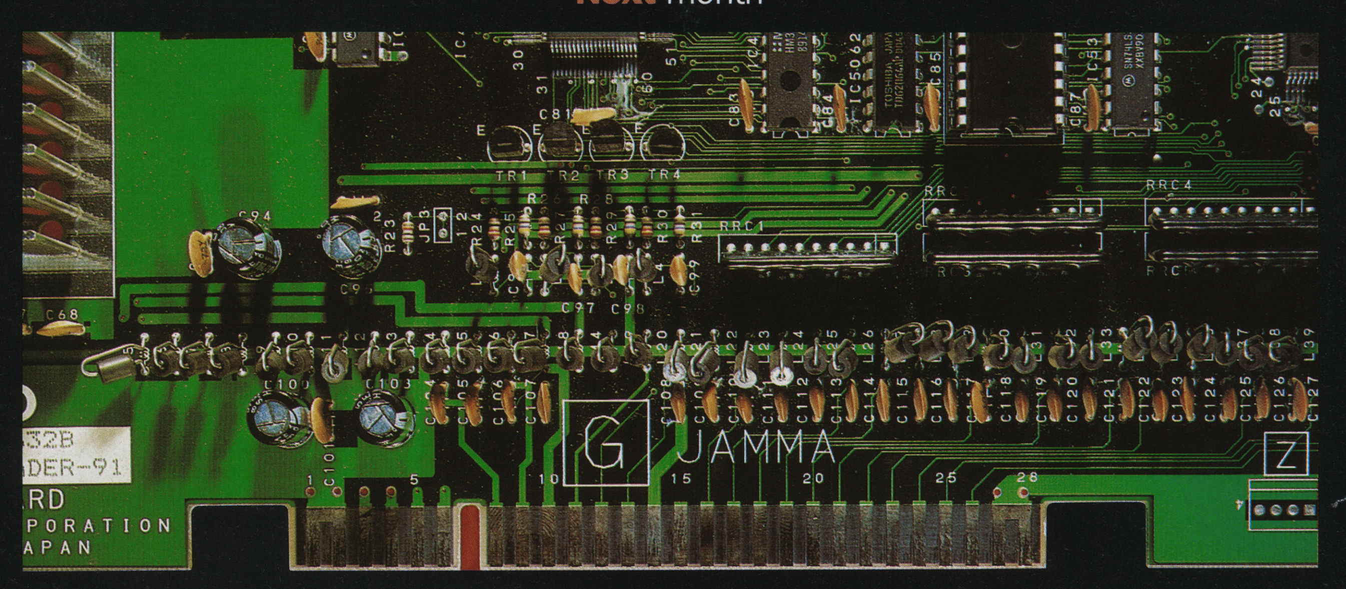
A It might prove difficult for a novice to obtain employment with a games hardware company: these firms tend to rely on the talents of a few select individuals with a track record in microprocessor design. The companies you mention also usually rely on large teams of engineers based in Japan (Sony, for example, own a workstation business which designs high-end systems).

However, a job with an organisation like Sony is not out of the question. When you've got your degree – try and specialise in games hardware – you'll be in a much better position to sell your skills. E

Q and A

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Next month





JAMMA is the biggest coin-op event in the Japanese calendar. Edge gets the lowdown on Sega's *Virtua Fighter 2*, Namco's *Ace Drivin'* and *Slipstream*, Capcom's first polygon-shifter.

While in Tokyo, Edge returns to Namco's R&D headquarters. After months in development, *Ridge Racer* is finally up and running on the PlayStation. Edge quizzes its creators and tracks its progress

EDGE 15

Thursday 27 October

continued Edge 15



Inside info:

64bit 3DO update

Saturn *Virtua Fighter*

PlayStation *Ridge Racer*

Inferno, Doom II, AVP

